

GW-R4513-E/AU Software Manual

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1. Product Overview

GW-R4513 is a 4G wireless router with powerful DTU functions, providing users with an industrial 4G router and DTU integration solution.

It adopts the high-performance embedded structure of the industry, and provides reliable data transmission network for the data transmission fields of smart home, smart grid, personal medical, industrial control and so on.

Support wired WAN ports, LAN ports, wireless WLAN network, 4G network interface, rich and diverse networking functions, easy for users to lay their own network

1.1. Product Function

- 1 wired LAN ports, 1 wired WAN ports (WAN ports can be switched to LAN ports).
- 2.4G WIFI wireless LAN
- Multiple LED communication indicators
- Supports SSH, TELNET, Web multi platform management configuration mode.
- One button to restore factory settings.
- The Ethernet support 10/100Mbps rate.
- VPN Client (PPTP/L2TP/IPSEC/GRE/OPENVPN/SSTP) and supports VPN encryption and static IP functions.
- Supports APN automatic checking network, 2/3/4G system switching, SIM information display, support APN/VPDN special network card.
- Supports for wired wireless multi network simultaneous online and multi network intelligent switching backup function
- Supports remote upgrade and remote monitoring.
- Dynamic Domain Name System (DDNS), Static Routing, PPPOE, DHCP, Static IP Function
- Mandatory portal (WIFIDOG), this function needs to be customized accodeing to customer needs.
- Supports the firewall, NAT, DMZ host, access control black-and-white list, IP speed limit, NTP, MAC speed limit.
- SMS AT command
- 4 network work mode: TCP Server, TCP Client, UDP Server and UDP Client
- Every connection supports 20KB serial data cache. When connection is abnormal, cached data can 't be lost.
- Supports for sending registration package / heartbeat data.
- Supports network transmission mode, HTTPD mode, UDC mode and USR-Cloud.
- AT command
- Supports external hardware watchdog design to ensure system stability.

2. Basic Function of Router

This chapter introduces the functions of GW-R4513, and the following is the overall block diagram of module functions.





Figure 1 product function

Interface comparison table:

Table 1 interface comparisontable

Network card name	Network card code	Corresponding network interface
Wired LAN port	br-lan	LAN
Default AP port of WIFI	raO	LAN
Wired WAN port	eth0.2	WAN_WIRED
4G port	eth1	WAN_4G

Application scenario:





Figure 2 application scenario

- User equipment or computer can access the external network through the wired LAN port or WIFI interface of GW-R4513.
- If you use an ordinary mobile phone card, you can switch to the external network without any need.

2.1. 4G Interface

This router supports the interface of one 4G/3G/2G communication module to access external network. 4G interface function:





Figure 3 4G interface function

Webpage:

🐼 顾问通讯	
GW-R4513	
Charle an	On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several enterty interfaces to the several interfaces. THERE IT AND I and the several interfaces to the several enterty interfaces to the several enterty interfaces.
Status	
Services	Common Configuration
Network	General Setup Physical Settings Firewall Settings
Interfaces	Status Uptime: 0h 5m 17s Image: MAC-Address: 1A:5E:42:E5:D0:78
SIM Card	RX: 1.34 MB (2886 Plts.) eth1 TX: 330.70 KB (2463 Plts.) IPW+1 (10.124.186.169/30
IPSEC	
Wifi	Protocol DHCP client V
AP Client	Hostname to send when 4GRouter requesting DHCP
DHCP and DNS	
Hostnames	Save Apply
Static Routes	
Diagnostics	这位于:

Figure 4 webpage

If the run time is 0, the network card can't run successfully.

Table2 status table		
No	Name	Intro



Be Honest, Do B	GW GW	Technical Support: h.usriot.com	
1 Run time		The running tir	me after power on
2	MAC address	The MAC add	dress of interface
3	Receive/send	Statistics of receiving and se	ending data of this network card
4	IPv4	The IPv4 protoco	l of this network card

< Description >

- ➢ GW-R4513-AU(operating band): FDD-LTE(1/2/3/4/5/7/8/28),TDD-LTE(40),WCDMA(1/2/5/8),GPRS(2/3/5/8)
- ➢ GW-R4513-E(operating band): FDD-LTE(1/3/5/7/8/20),TDD-LTE(38/40/41),WCDMA(1/5/8),GPRS(3/8)
- > The protocol of 4G interface: do not modify, keep the default.
- > The router will give priority to the use of wired WAN ports, followed by the use of 4G networks.
- > If you use APN private network, please refer to the introduction of APN chapter.

2.2. LAN Interface

The LAN port is a local area network, there is 1 wired LAN port (WAN port can also be set to LAN port).



Figure 5 LAN interface function



🎸 顾问通讯				
GW-R4513				
Status	On this page you can config network interfaces separate	gure the network interfa d by spaces. You can a	rfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the nan also use <u>VLAN</u> notation INTERFACE.VLANNR (e.g.: eth0.1).	ies of several
Services	Common Configuration	n		
Network	General Setup Physical	Settings Firewall	all Settings	
Interfaces	Status	25	Uptime: 0h 6m 16s MAC-Address: D880-0C:00:00:92 BX: 627 71 K8 (A652 Ptr.)	
SIM Card		br-lan	TX: 2.39 MB (5092 Ptks) IPv4: 192.168.11/24 IPv6: F107.469.39Pth/0c0011/60	
Wifi	Deshard	Statio address u		
AP Client	Really switch protocol?	Switch protocol		
DHCP and DNS	IPv4 address	192.168.1.1		
Hostnames	IPv4 netmask	255.255.255.0	×	
Static Routes	IPv4 gateway			
Diagnostics	Use custom DNS servers		۵	激活 转到"证
QoS				

Figure 6 webpage of LAN interface setting

- < Description >
- ➤ 1 LAN ports
- The default static IP address 192.168.1.1 and the subnet mask 255.255.255.0. This parameter can be modified, such as static IP modification to 192.168.2.1.
- > The WIFI interface (WLAN port) is bridged to the LAN port.
- By default, open the DHCP server function. All devices connected to the router's LAN port can automatically get the IP address.
- Simple state statistics function.

2.2.1. DHCP Function

The DHCP Server function of the LAN port is enabled by default (optionally turned off), and all network devices connected to the LAN port can automatically obtain IP addresses.



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Ø	颜问通讯			
		IPv4 address	192.168.1.1	
		IPv4 netmask	× 255.255.255.0	
	Status	IPv4 gateway		
	Services	IPv4 broadcast		
	Network	Use custom DNS servers	a a	
	WAN/LAN Port			
	Firewall	DHCP Server		
	DTU	General Setup		
	System	Ignore interface	Disable <u>DHCP</u> for this interface.	
	Logout	Start	 100 O Lowest leased address as offset from the network address 	
		Leasetime	12h ② Expiry time of leased addresses, minimum is 2 minutes (2m), Must take a unit.	
			Save Apply	

Figure7 webpage of DHCP setting

< Description >

- > You can adjust the initial address of DHCP pool and address renting time.
- > The default allocation range of DHCP starts from 192.168.1.100.
- Default rental time is 12 hours.



2.3. WAN Interface

🅢 顾问通讯				
GW-R4513 Status		Interfaces - WAN_V On this page you can co network interfaces separ	/IRED nfigure the network inter ated by spaces. You can a	faces. You can bridge several interfaces by ticking the "bridge also use <u>VLAN</u> notation INTERFACE.vLANNR (<u>e.g</u> . eth0.1).
Services <u>Network</u>		Common Configurat	ion ical Settings Firewa	ll Settings
WAN/LAN Port Firewall		Statu	s 💯 eth0.2	Uptime: 0h 0m 0s MAC-Address: D8:B0:4C:00:00:92 RX: 0.00 B (0 Pkts.) TX: 29.60 KB (171 Pkts.)
DTU System	н	Protoco lostname to send whe	n 4GRouter	
Logout		requesting DHC	P	Save Apply

Figure8 webpage of WAN interface setting

WAN port is WAN interface. < Description >

- > 1 wired WAN ports
- Support DHCP client, static IP, PPPOE mode.
- Default DHCP client
- Note: The WAN interface can be set to LAN for the convenience of customers to communicate with multiple devices in the LAN. For specific settings, please refer to the Network Port Mode page.

2.4. Wi-Fi Wireless Interface

The functional diagram of WLAN is shown in the following figure:



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Figure9 WI-FI function

< Description >

- > The GW-R4513 router is an AP, and other wireless terminals can access its WLAN network.
- Supports up to 24 wireless STA connections.
- > WLAN, LAN and wired LAN port exchange each other.
- > The maximum coverage of WIFI is 150m in the open area.

Table3 WIFI default parameter

Name	Parameter
SSID name	$\operatorname{GW-R4513-XXXX}\ (\operatorname{XXXX}$ is the last 4 bit of MAC address $)$
Wi-Fi password	12345678
Channel	Auto
Bandwidth	40MHz
Encryption	WPA2-PSK



Figure11 the setting page of WI-FI



Be Honest, Do Best !	GW-R4513 software manual	Technical Support: h.usriot.com
GW-R4513	Configuration.	
Status	Device Configuration	
Services	General Setup Advance	d Settings
Network	Status	BSSID: D8:B0:4C:00:00:91 Channel: 11 Bitrate: 150.0 Mbit/s
WAN/LAN Port	Padie en/off	off v
Firewall	Network Mode	802.11b/a/n v
DTU	Channel	auto
System		
	Figure12 the setting page of	radio on/off

2.5. Network Diagnostic Function

🚺 顾问通讯	
Interfaces	^
SIM Card	Diagnostics
IPSEC	Network Utilities
Wifi	IPv4 V Ping Traceroute Nslookup
AP Client	
DHCP and DNS	
Hostnames	
Static Routes	
Diagnostics	
QoS	
WAN/LAN Port	

Figure13 the webpage of diagnostic

- Online diagnostic functions include Ping tools, routing parsing tools, and DNS View tools.
- Ping is a Ping tool, which can directly test Ping at a specific address on the router side.
- Traceroute is the routing parsing tool, which can get the routing path when accessing an address.
- Nslookup is a DNS view tool, which can resolve domain names to IP addresses.



2.6. Host Name and Time Zone

🚺 顾问通讯		
GW-R4513	System	
Status	Here you can configure the	basic aspects of your device like its hostname or the timezone.
Services	System Properties	
Network	General Settings Logg	ing Language and Style
WAN/LAN Port	Local Time	Fri Jun 15 10:41:59 2018 Sync with browser
Firewall	Hostname	GW-R4513
DTU	Timezone	Asia/Beijing 🗸
System		
System	Time Synchronization	
Administration	Enable NTP client	
Scheduled Tasks	Provide NTP server	
Backup/Upgrade	NTP server candidates	0.openwrt.pool.ntp.org
Reboot		2.openwrt.pool.ntp.org

Figure14 hostname and time zone



2.7. NTP Setting

Time Synchronization			
Enable NTP client			
Provide NTP server			
NTP server candidates	0.openwrt.pool.ntp.org	ā	
	1.openwrt.pool.ntp.org	â	
	2.openwrt.pool.ntp.org	ā	
	3.openwrt.pool.ntp.org	G	
		Covo	
		Save App	У

Figure15 the webpage of NTP

The router can start the NTP client function by default.

2.8. Password Setting

GW-R4513	Router Password			
Status	Changes the administrator p	assword for accessing the devic	e	
Services	Password	•••••	æ	
Network	Confirmation		41 12	
WAN/LAN Port				
Firewall			Save	Apply
DTU				
System				
System				
Administration				
Scheduled Tasks				

Figure16 the webpage of setting password



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The default password can be set, the default password is root, and the user name can't be set. This password is the management password (web page login password).

User name can't be modified.

2.9. Backup Function

	Flash operat	tions
Status	Actions	
Services	Backup / Res	store
Network	Click "Generate	e archive" to download a tar archive of the current configuration files. To reset t
WAN/LAN Port	Download	ad backup: Generate archive
	Reset to	o defaults: Perform
rewall	To restore conf	figuration files, you can upload a provincely conserted backup archive back
TU	Restore	re backup: 浏览 未选择文件。 Upload archive
vstem		
vstem		
	Flash new firm	rmware image
ministration	Upload a prope	per image here to replace the running firmware. Check "Keep settings" to retain
duled Tasks	Keep Check	p settings: 🗌
kup/Upgrade		Image: 浏览 未选择文件。 Flash image
boot		
	Figure17 the	e webpage of backup

Upload parameter file



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	Flash operations
Status	Actions
Services	Backup / Restore
Network	Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmwa
WAN/LAN Port	Download backup: Generate archive
Firewall	Reset to defaults: Perform
DTU	To restore configuration files, you can upload a previously generated backup archive here.
System	Restore backup: Mus. */
System	Electrony firmware image
Administration	Upload a proper image here to replace the running firmware. Check "Keep settings" to retain the curren
Scheduled Tasks	Keep settings:
Backup/Upgrade	Image: 浏览 未选择文件。 Flash image
Reboot	
•	Figure18 the webpage of backup or recover

Backup parameters

2.10. Reset to Default

You can restore factory parameter settings through web pages.



Flash operations		
Actions		
Backup / Restore		
Click "Generate archive" to	download a tar archive of the curre	ent configuration files. To reset the f
Download backup:	Generate archive	
	Derferm	
Reset to defaults:	Perform	
To restore configuration file	es, you can upload a previously ger	nerated backup archive here.
Restore backup:	浏览 未选择文件。	Upload archive
Flash new firmware im	age	
Upload a proper image her	e to replace the running firmware.	Check "Keep settings" to retain the (
Keep settings:		
Check firmware:		
Image:	浏览 未选择文件。	Flash image
	Flash operations Actions Backup / Restore Click "Generate archive" to Download backup: Reset to defaults: To restore configuration file Restore backup: Plash new firmware im Upload a proper image her Keep settings: Check firmware:	Flash operations Actions Backup / Restore Click "Generate archive" to download a tar archive of the curre Download backup: Generate archive Dewnload backup: Generate archive Reset to defaults: Perform To restore configuration files, you can upload a previously ger Restore backup: 浏览 未选择文件。 Flash new firmware image Upload a proper image here to replace the running firmware. Keep settings: Check firmware: Image:

Figure19 the webpage of reset to default

Click the button to restore the factory settings. This function is consistent with the Reload button function of the hardware.

The use of Reload keys

- Long press 5S above and then release, the router will restore the factory parameter settings automatically and restart automatically.
- When the reboot takes effect, all the lights will be flashing 1 times and then destroyed.

2.11. Indicator Light

rables with default parameter			
Name	Intro		
PWR	On when power on		
WAN	On when use the WAN port, flicker when data transmission		
LAN	On when use the LAN port, flicker when data transmission		
WLAN	On when use WI-FI		
2G indicator light	On when work on 2G		
3G indicator light	On when work on 3G		
Signal intensity (1-3)	The more, the stronger the signal is.		

Table3 WIFI default parameter

< Description >

- The 2/3/4G indicator lights up whether the GW-R4513 network is successful or not (the most important indicator).
- After WIFI starts successfully, the WLAN (or WIFI) indicator light on.
- > The working conditions of WAN and LAN are indicated by WAN and LAN indicators.



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- > The corresponding WAN/LAN indicator flashes when the network line is connected and the network device working.
- > The power lamp will always be bright.
- > When the LTE module works at 4G, the 2G indicator and the 3G indicator light are all on.

2.12. Firmware Upgrade

Status	Actions	
Services	Backup / Restore	
Network	Click "Generate archive" to	download a tar archive of the current configuration files. To reset the firmware to its initial state, clic
WAN/LAN Port	Download backup:	Generate archive
Firewall	Reset to defaults:	Perform
DTU	To restore configuration file	s, you can upload a previously generated backup archive here.
System	Restore backup:	浏览 未选择文件, Upload archive
System		
system	Flash new firmware ima	age
Administration	Upload a proper image here	e to replace the running firmware. Check "Keep settings" to retain the current configuration.
Scheduled Tasks	Keep settings:	
Rackup/Upgrado	check in inware.	
васкир/Ордгаде	Image:	测意… 本述译义件。 Flash Image
Reboot		

Figure 20 the webpage of upgrade

< Description >

- > The firmware upgrade process will last about 3-4 minutes. Please login again after 4 minutes.
- > You can choose whether to save configuration.
- > During the process of firmware burning, please do not power down or unplug the wire.



2.13. Reboot



Figure21 the webpage of reboot

Click the button to restart the router.

The restart time is consistent with the router's power on startup time, which is about 40~60 seconds.



3. Advanced Function

3.1. DDNS

3.1.1. Supported Services

The use of dynamic domain names can be divided into two situations. The first is that routers support DDNS.

	MYDDNS	
GW-R4513	Enable	
Status	Event interface	wan_wired @ Network on which the ddns-updater scripts will be started
Services	Service	ddns.oray.com 🗸
Oray Server	Hostname	ddns.oray.com dnsdynamic.org 1.ddns.or
Dynamic DNS	Username	easydns.com
Captive Portals	Password	All IS
RemoteManager	Source of IP address	interface 🗸
Base Station	Interface	eth0.2 🗸
Network	Check for changed IP every	10
	Check-time unit	min 🗸

Figure22 the webpage of setting DDNS

Table4 DDNS custom server parameter

Function	Intro	Note
Enable	Enable/disable DDNS function	Default disable
Event interface	Choose the WAN port	e.g. choose wan_wired
Service/URL	Fill in the service address of DDNS.	e.g.
		http://ouclihuibin123:ouclihui
		bin1231@ddns.oray.com/ph/
		update?hostname=1a516r16
		19.iask.in
Hostname	Fill in the domain name	e.g. 1a516r1619.iask.in
User name	Fill in account name	e.g. ouclihuibin123
Password	Fill in password	e.g. ouclihuibin1231
Source of IP address	Choose the interface	
Interface	Choose the interface name	e.g. choose eth0.2
Check for changed	The interval between detecting IP	e.g. 1 min
IP/check-time unit	address changes, domain name pointing	
	to the IP may change frequently, the	



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	smaller the value, the more frequent	
	the detection.	
Force update time	Mandatory update interval	e.g. 72 h
/force-time unit		

3.1.2. Custom Service

The first is that the router itself supports this service (see the "Services" drop-down box and select the corresponding DDNS service provider). The settings are as follows:

	MYDDNS	
GW-R4513	Enable	
Status	Event interface	wan_wired Wetwork on which the ddns-updater scripts will be started
Services	Service	custom 🗸
Network	Custom update-URL	
WAN/LAN Port	Hostname	mypersonaldomain.ddns.or
Firewall	Username	myusername
DTU	Password	**************************************
System	Source of IP address	interface V
System	Interface	eth0.2 v
Logout	Check for changed IP every	10
	Check-time unit	min 🗸
	Force update every	72
	Force-time unit	h 🖌

Figure 23 the webpage of DDNS

DDNS function, provides a dynamic domain name resolution function for the router in the external network, and requests a domain name for itself to point to own WAN port IP address.

This function allows remote access to the router directly through the domain name.

The parameters need to be filled in as follows. The dynamic domain name I applied for is 1a516r1619.iask.in, the user name is ouclihuibin123, and the password is ouclihuibin1231.

Function	Intro	Note	
Enable	Enable/disable DDNS function	Default disable	
Event interface	Choose the WAN port	e.g. choose wan_wired	
Service/URL	Fill in the service address of DDNS.	e.g.	
		http://ouclihuibin123:ouclihui	

Table5 DDNS custom server parameter



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		bin1231@ddns.oray.com/ph/
		update?hostname=1a516r16
		19.iask.in
Hostname	Fill in the domain name	e.g. 1a516r1619.iask.in
User name	Fill in account name	e.g. ouclihuibin123
Password	Fill in password	e.g. ouclihuibin1231
Source of IP address	Choose the interface	
Interface	Choose the interface name	e.g. choose eth0.2
Check for changed	The interval between detecting IP	e.g. 1 min
IP/check-time unit	address changes, domain name pointing	
	to the IP may change frequently, the	
	smaller the value, the more frequent	
	the detection.	
Force update time	Mandatory update interval	e.g. 72 h
/force-time unit		

Next, confirm whether the DDNS settings are effective (the router must restart to make the settings effective). First, let's take a look at the IP address of the public network of our network.

Then on the PC, the Ping domain name 1a516r1619.iask.in can be Ping, indicating that DDNS has come into effect.

3.1.3. Functional Characteristics

- > After modifying the settings, please restart the router to ensure that it is effective.
- Please fill in the parameters, service/URL, domain name, username password, interface and other parameters strictly accodeing to the form instructions to ensure that they are correct.
- > Even if it is a router under the subnet, this function should also enable the dynamic domain name to take effect.
- DDNS + port mapping can remote access to the router's intranet.
- > If the router's network is not allocated to an independent public network IP, this function can't be used.
- > You can add multiple DDNS domains to this router.

3.2. WiFiDog

Forced Portal (WiFiDog) allows devices accessing the router network to login to an authentication page for the first time when browsing an extranet web page. Only when the authentication is successful can they access the extranet. The significance of mandatory portal function lies in the security of LAN network, recodeing illegal acts such as network attacks using public networks, in addition, it can also be used for advertising purposes, it collects customer information with the tacit consent of current broadband users, so as to facilitate manufacturers to promote marketing.



Wifidog-web	
Wifidog not start and restart	t the effective
Configuration	
General Settings White	list Advanced Settings
Enable	Imable or Disable wifidog
Blacklist and whitelist daemon	Blacklist and whitelist daemon, monitor the ip changes
AP ID	eec57916f
	[2] Fill with wifidog server's correct AP ID
Wifidog server address	wifiauth.zhangkongbao.co
-	Ø Domain name or ip
	Save

Figure24 the webpage1 of wifidog

Enable WI-FI dog

GW-R4513	Wifidog-web
Status	Wifidog not start and restart the effective
Services	Configuration
Oray Server	General Settings Whitelist Advanced Settings
Dynamic DNS	Enable 🛛 🍘 Enable or Disable wifidog
Captive Portals	Daemon enable 🛛 🎯 Enable daemon for wifidog, ensure the thread always online
RemoteManager	Blacklist and whitelist 🗌 🍘 Blacklist and whitelist daemon, monitor the ip changes daemon
Base Station	AP ID eec57916f
Network	Wifidog server address wifiauth.zhangkongbao.com
WAN/LAN Port	Ø Domain name or ip
Firewall	
DTU	Save



Č		
	Configuration	
Status	General Settings Whit	elist Advanced Settings
Services	Encrypted transmission	🗌 🎯 Enable SSL to make transmission safe
Oray Server	Internal Interface	br-lan
Dynamic DNS	External Interface	eth0.2
Captive Portals	Wifidog server port	Onfigure External Interface
RemoteManager		Ø default 2060
Base Station	HTTP Port	80 Ø default 80
Network	Wifidog server file path	/apps/wifiauth/
WAN/LAN Port	Maximum access number	40
Firewall		② Determined by router ability, default 50
DTU	Check interval	60 ② Check interval for client access, default 60 seconds
System	Timeout for client	5 Ø Timeout for client access authentication, default 5 minutes

Figure25 the webpage2 of wifidog

Table6 WI-FI dog parameter

Function	Intro	Note
Enable WI-FI dog	Enable	If use
Daemon enable	Enable	If use
AP ID	nfuold700	
Wifi dog server address	www.XXX.cn	
Internal interface	Br-lan	
External interface	Eth0.2	If use 4G, please fill in eth1
Wifi dog server file path	/apps/WIFlguanjia/	

Note

- > The mandatory portal functionality of this router is a demonstration, and if you want to use it formally, you need to customize it with the server
- If you do not intend to use this feature, uncheck it, or it will result in inaccessible access to the external network under the router (authenticated only)



3.3. APN Setting

	^		
		SIM card settings	
Status		Settings for APN address, us	sername and password, if you goning to use an APN card
Status		Configuration	
Services			
Network		APN LTE Config	SIM Info
Interfaces		APNAddress	AutoCheck 🗸
SIM Card		Username	
IPSEC		Password	
Wifi		AuthType	PAP 🗸
AP Client		Check Registered (Seconds)	30
DHCP and DNS		WAN Priority	wanfirst 🗸
Hostnames		Reference Mode	Custom Y
Static Routes		Reference Address(Can only enter the IP)	114.114.114

Figure 26 the webpage 2 of APN setting

If you use an APN card and have a special APN address, you need to set the APN address, username, and password.

Table7 APN parameter			
Parameter name	Function		
APN address	Fill in the APN address		
Use name	The default is empty. If you use APN		
	card, please fill in correctly.		
Password	The default is empty. If you use APN		
	card, please fill in correctly.		
Type of PDP	Default		
Auth type	Default		
Others	Please keep default		

Note

- Normal 4G mobile phone card, without setting up, you can access the Internet.
- > If you use APN special network card, you must fill in the APN address, user name and password.

3.3.1. Modify APN

First, select the "Customize" option, and then fill in the exact APN address as required. After successful setup, restart



the router.

GW-R4513	SIM card settings	
Status	Settings for APN address,	username and password, if you goning to use an APN card, plea
Services	Configuration	
Network	APN LTE Config	SIM Info
WAN/LAN Port	APNAddress	AutoCheck
Firewall	Usernam	AutoCheck custom
DTU	Password	
System	AuthType	PAP 🗸
Logout	Check Registered (Seconds)	30
	WAN Priority	wanfirst 🗸
	Reference Mode	Custom 🗸
	Reference Address(Can only enter the IP)	114.114.114
	Figure 27 the such page of m	

Figure 27 the webpage of modify APN

3.3.2. SIM Card Settings

The networking format of 4G-router is set automatically by default, that is, the priority of 4G - > 3G - > 2G, and automatically selects the networking.

If it's not a 4G SIM card, or if the network needs to be specified (for example, you specify that you want to use 2G or 3G networks), then you need to choose the network format (otherwise it will affect the network rate, etc.)



		SIM card settings		
Status		Settings for APN address, us	sername and password, if you goning to	use an APN card, please fill in
Services		Configuration		
Network		APN LTE Config S	SIM Info	
WAN/LAN Port		Mode(Please Select 2/3/4G,When selecting		
Firewall	a	uto, default 4G>3G>2G)	2G 3G	
DTU	au	uto, default 4G>3G>2G)	4G	
System				
Logout				Save Apply

Figure 28 the webpage of SIM card setting

3.3.3. SIM Card Information

The SIM card information displays the configuration information of the SIM card in detail, and you can see the cause of the problem here if the network fails.

GW-R4513	^	Configuration	
Status		APN LTE Config SIM Info	
Services		Local Time	Tue Oct 30 09:26:40 2018
Network		(loop)	
		IMEI Number	862815039184492
Interfaces		Operator information	CHINA-MOBILE
SIM Card		signal intensity	normal(31)
IPSEC			
		Software version number	EC20CEHCR06A02M1G
Wifi		SIM Card CIMI number	460043580702254
AP Client		SIM Card number	89860415151891392254
		Short message service center number	"+8613800100569"
DHCP and DNS		system information	4G Mode
Hostnames		PDP protocol	"IPV4V6"
Static Routes		CREG	register
		Check ME password	READY
Diagnostics		base station information	"5315","C744D01"

Figure 29 the webpage of SIM card info



3.4. VPN Client(PPTP/LTTP/GRE/OPENVPN)

3.4.1. Concept

VPN, virual private network, include client and server, divided into PPTP,L2TP,ipsec,openvpn,gre,sstp.etc on protocol. **PPTP:**

A point-to-point tunneling protocol that uses a TCP (port 1723) connection to maintain tunnels, encapsulates data into PPP data frames via tunnels using general routing encapsulation (GRE) technology, and encrypts or compresses load data in encapsulated PPP frames. MPPE encrypts PPP frames with encryption keys generated by MS-CHAP, MS-CHAP V2, or EAP-TLS authentication procedures.

L2TP:

The second tier tunneling protocol is similar to PPTP. Currently GW-R4513 supports many authentication methods, such as tunnel password authentication, CHAP, etc. Encryption methods support MPPE encryption and L2TP OVER IPSEC pre-shared key encryption.

IPSEC:

IPSEC protocol is not a separate protocol. It provides a complete set of network data security architecture between application and IP layer, including network authentication protocol AH, ESP, IKE and some algorithms for network authentication and encryption. Among them, AH protocol and ESP protocol are used to provide security services, and IKE protocol is used for key exchange.

OPENVPN:

The application layer VPN based on Openssl library. Support certificate-based two-way authentication, that is, the client needs to authenticate the server, the server also needs to authenticate the client

GRE:

GRE(Generic Routing Encapsulation) protocol encapsulates packets of some network layer protocols, such as IP and IPX, so that these encapsulated packets can be transmitted in another network layer protocol, such as IP. GRE uses tunnel technology, which is VPN's third layer tunneling protocol.

SSTP:

SSTP, also known as Secure Socket Tunneling Protocol, is an Internet protocol that creates a VPN tunnel for transmission over HTTPS.

SSTP is only suitable for remote access, and can 't support VPN tunnels between sites and sites.

3.4.2. PPTP Client

3.4.2.1. PC Connect to VPN (Based on PPTP Protocol)

We first create VPN Server on the server.

Open the network connection page on the server (remote server) and click File - > New incoming connection.

Then, select Add account, please enter user name, password and other information..

Click Next and check through Internet to connect to this computer.

Then, select "Internet Protocol Version 4" to set the properties of the incoming IP, IP address assignment select "Specify IP Address", then select "OK" and "Allow Access".

Now we create a VPN server.



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Let's talk about the use of VPN Client. We are looking for a computer in the LAN to ensure that it can access the server above. Then create a new VPN connection.

In the connection box, click "Properties", the tab can set the target address (the address of the VPN server), security options to select "PPTP protocol", after the point is determined, enter the username, password.

Click the "Connect" button, after the connection is successful, you can see the VPN network card connection, from grey to bright color, representing the VPN connection has been successfully established.

3.4.2.2. Router Connect to VPN(Based on PPTP Protocol)

Next we use the PPTP Client on the router to replace the way of computer dialing.

Assuming that the user has obtained the VPN server address, account and password, we create an interface, select the PPTP protocol, and write the other parameters in turn.



Figure 30 the webpage1 of VPN



Technical Support: h.usriot.com

GW-R4513	Create Interface		
> Status	Name of the new interface	test Output: The allowed characters	are: A-Z , a-z, 0-9 and _
> Services	Protocol of the new interface	Static address V Static address	
> WAN/LAN Port	Create a bridge over multiple interfaces	DHCP dient Unmanaged DHCPv6 dient	
> Firewall	Cover the following interface	PPP PPtP PPPoE	er: "apcli0" er: "apcli1" a: "atbo"
> DTU		PPPoATM UMTS/GPRS/EV-DO	"eth0.1" (lan)
> System		GRE	"eth0.2" (wan_wired) er: "eth1" (wan_4g)
> Logout		TAP SSTP	er: "ip6gre0" er: "ip6tnl0"
		Relay bridge O O Wireless Netw O O	jer: "ra0" iter: "teql0" iork: Master "GW-R4513-0092" (lan) ace:

Figure31 the webpage2 of VPN

Select WAN, because it is dialing at WAN port, then save and apply.

		^			
			Interfaces - 123TEST		
>	Status		On this page you can config network interfaces separate	ure the network interfaces. You can bri d by spaces. You can also use <u>VLAN</u> no	dge several interfaces by ticking the "bridge tation INTERFACE.VLANNR (e.g.: eth0.1).
>	Services		Common Configuration	1	
~	Network		General Setup Advance	ed Settings Firewall Settings	
	Interfaces		Status	pptp-123test	RX : 0.00 B (0 Pkts.) TX : 0.00 B (0 Pkts.)
	SIM Card				
	IPSEC		Protocol	PPtP v	
	Wifi		VPN Server		
	vviii		PAP/CHAP username		
	AP Client		PAP/CHAP password	2	
	DHCP and DNS				
	Hostnames				Save Apply
	o o		51 00 J		

Figure32 the webpage3 of VPN

Wait a minute or restart the router, when you see the "VPN" interface in the router page, there is a run time (not 0), indicating that the current VPN has been successfully started.

Note:

- Currently PPTP supports MPPE encryption and a variety of authentication methods. Specific settings can be viewed in advanced settings for authentication.
- > Only MSChapV2 indicates that MPPE encryption is only supported.

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MSChapV2 EAP PAP CHAP supports MPPE encryption and multiple authentications.

> Other means do not handle, default status, only CHAP authentication by default.

3.4.3. L2TP Client

1. L2TP supports multiple authentication (MSCHAPV2, CHAP, EAP, PAP), MPPE encryption, L2TP OVER IPSEC encryption.

2. increased the way of tunnel password authentication.





	Interfaces - TEST	
> Status	On this page you can config network interfaces separate	gure the network interfaces. You can bridge several interfaces by ticki d by spaces. You can also use <u>VLAN</u> notation INTERFACE.VLANNR (e.
<u>Services</u>	Common Configuration	n
> Network	General Setup Advanc	ed Settings Firewall Settings
> WAN/LAN Port	Auth Type	No Authby
> Firewall	Tunnel Auth Password Enable	
> DTU	Tunnel Auth Password	123456
> System		
y system	Set Static Ip	
> Logout	Enable IPv6 negotiation on the PPP link	
	Use default gateway	If unchecked, no default route is configured
	Use gateway metric	
	Custom Subnet Mask Enabled	🗌 🎯 If unchecked, default Subnet Mask is 255.255.255.255

Figure34 tunnel auth password

Interfaces - TEST	
On this page you can config network interfaces separate	gure the network interfaces. You can bridge sev d by spaces. You can also use <u>VLAN</u> notation I
Common Configuration	ı
General Setup Advance	ed Settings Firewall Settings
Auth Type	L2TP OVER IPSEC
IPSEC CONNECT NAME	
IKE Algorithm	3DES-SHA1 v
SA Type	ESP 🗸
ESP Algorithm	3DES-SHA1 🗸
PSK	<u>a</u>
Tunnel Auth Password Enable	
Tunnel Auth Password	123456 (2) character: 1-16

Figure 34 L2TP OVER IPSEC auth type

> Status

> Services

Network

Firewall

> DTU

> System

> Logout

> WAN/LAN Port


3.4.4. IPSEC

	^	IPSEC Settings	
> Status		Please fill in below settings of	correctly if you want to use IPSEC
> Services		Configuration	
✓ Network		General Setup Advance	ed Settings Connect Log
Interfaces		Connect Type	Net-to-Net Mode 🗸
SIM Card		Transport Type	Tunnel 🗸
IPSEC		Function Type	Client VPN 🗸
Wifi		Connect Name	
AP Client		Local Interface	lan v
DHCP and DNS		Local Subnet	Subnet expressed as network/netmask, e.g. 10.10.10.0/24
Hostnames		Local ID	ID expressed as IPv4 address e.g. 10.10.10.10,
Static Routes			or as fully-qualified domain name preceded by @ e.g. @domain
Discussion		Remote Address	IPv4 Address. A.B.C.D

Figure34 IPSEC setting

Selection of application modes: Net-to-Net mode (site-to-site or gateway-to-gateway), Road Warrior mode (end-to-site or PC-to-gateway)

- Transmission mode selection: tunnel mode and transmission mode. It can be selected in the transport type.
- Functional types: VPN client and VPN server.
- Connection name: indicate the name of the connection, must be unique.
- Local interface: wan_wried, wan_4g.
- Remote address: IP/ domain name.
- Local Subnet: IPSEC Local Protected Subnet and Subnet Mask. If you choose the Road Warrior client, you do not need to fill in.
- For terminal network: IPSEC end protection subnet and subnet mask.
- Local terminal identifier: the channel local identifier can be IP or domain name. Note that when the domain name is customized, add @
- End terminal identifier: the channel end identifier, it can be IP or domain name. Note that when domain name is customized, add @



Be Honest, Do Best !	GW-R4513 software manual	Technical Support: h.usriot.com
GW-R4513	General Setup Advanced	d Settings Connect Log
> Status	DPD Enable IKE Algorithm	3DES-SHA1 V
> Services	IKE Life Time	28800 Unit: second, Range: 1-86400, Defalut: 28800
✓ Network Interfaces	SA Type	ESP 🗸
SIM Card	ESP Algorithm ESP Life Time	3DES-SHA1 ~ 3600
IPSEC	Mode	 O Unit: second, Range: 1-86400, Default: 3600 Main
Wifi AP Client	Session key forward encryption(PFS)	
DHCP and DNS	Auth By	Secret 🗸
Hostnames	PSK	80 10

Figure35 IPSEC advance setting

Start DPD detection: whether to enable this function, hook is indicated to enable.

DPD interval: set the time interval of connection detection (DPD).

DPD timeout time: set up the timeout time of connection detection (DPD).

DPD operation: sets the operation of connection detection.

IKE encryption: the first phase includes encryption, integrity and DH switching in the IKE stage.

IKE life cycle: set the life cycle of IKE, in seconds, default: 28800.

SA type: ESP and AH can be selected in the second stage.

ESP encryption: select the corresponding encryption mode and integrity scheme.

ESP life cycle: set ESP life cycle, unit: s, default: 3600

Mode: negotiation mode default main mode, aggrmode can be selected.

Session secret key forward encryption (PFS): if hook is activated, PFS will enable.

Authentication method: currently supports the pre shared key authentication method.

Note

After the configuration, the ISAKMP SA established flag in the connection log indicates that the IPSEC VPN was created successfully.

3.4.5. OPENVPN

Add one interface, choose TUN or TAP mode:



Technical Support: h.usriot.com

	^				
	Inte	rfaces			
> Status	Inter	rface Overview			
Services	Netwo	ork	Status	Actions	
 Vetwork Interfaces 		LAN 診 (読意) br-lan	Uptime: 0h 8m 55s MAC-Address: D8:80:4C:00:00:92 RX: 428.13 K8 (3185 Pkts.) TX: 1.65 M8 (3555 Pkts.) IPv4: 192.168.1.1/24 IPv5: FDE3:24A3:858:0:0:00:1/60	Connect Stop Edit Delete	
SIM Card IPSEC		WAN_4G eth1	Uptime: 0h 8m 41s MAC-Address: 0A-C1-2E:17:F5:18 RX: 1.36 MB (2628 Pkts.) TX: 311-21 KB (2194 Pkts.) IPv4: 10.243.10.217/30	Connect Stop Image: Connect Image: Connect Image: Connect Image: Connect	
Wifi AP Client		WAN_WIRED eth0.2	Uptime: 0h 0m 0s MAC-Address: D8:80:4C:00:00:92 RX: 0.00 B (0 Pkts.) TX: 27.55 KB (174 Pkts.)	Connect Stop C Edit Delete	
DHCP and DNS	Ad	d new interface			
Hostnames					
Static Routes					
Diagnostics				Ĩ	敫活 V

Figure36 add new interface

GW-R4513	Create Interface		
> Status	Name of the new interface	test The allowed characters	are: A-Z , a-z , 0-9 and _
 > Services > Network > WAN/LAN Port > Firewall > DTU > System > Logout 	Protocol of the new interface Create a bridge over multiple interfaces Cover the following interface	The allowed characters Static address DHCP client Unmanaged DHCPv6 client PPP PPtP PPPoE PPPoATM UMTS/GPRS/EV-DO LZTP GRE TUN TAP SSTP Relay bridge O Ethernet Adapt O Wireless Netw	er: "apcli0" er: "apcli1" h: "eth0" "eth0.1" (lan) "eth0.2" (wan_wired) er: "eth1" (wan_4g) er: "ip6gre0" er: "ip6tnl0" er: "ra0" ter: "teql0" ork: Master "GW-R4513-0092" (lan)
		O 🖉 Custom Interfa	ace:

Figure37 add OPENVPN interface



Technical Support: h.usriot.com



Figure38 general setting

Protocol: TUN (routing mode) or TAP (bridge mode).

Channel protocol: UDP or TCP

Port: the listening port of the OPENVPN client.

Interface of this terminal: it can be wan_wired and wan_4g.

Remote address: the IP/ domain name of the server.

Local tunnel address: set the local tunnel address, such as 192.168.10.1, otherwise the default server automatically allocates.

Remote Tunnel Address: set the tunnel address on the opposite side, such as 192.168.10.1, otherwise the default server automatically allocates.



Technical Support: h.usriot.com

4513	Common Configuration
	General Setup Advanced Settings Firewall Settings
	Encryption Standard Blowfish CBC 🗸
	Use LZO Compression
	Keepalive Set 10 120
	Tun MTU Set 1500
	TCP MSS 1450
	TLS AUTH Key
	Certificate
	Public Client Certificate

Figure 39 advance setting

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

LZO compression: enable or disable transmission data using LZO compression.

Keep-alive settings: default is 10120.

TUN MTU settings: set the MTU value of the channel.

TCP MSS : maximum segment size of TCP data

TLS authentication key: authentication key of secure transport layer

Public service CA certificate: CA certificate of server and client public

Public client certificate: client certificate

Client private key: client key

Note

1. Before the client connects to the server, the Ca certificate, the client certificate, the client key, the TLS authentication key, these need to be provided by the server.

2. After obtaining the certificate file, copy the different certificate contents into the edit box corresponding to the configuration interface.



3.4.6. GRE



Figure40 add new interface

GW-R4513	Create Interface		
> Status > Services	Name of the new interface Protocol of the new interface	test The allowed characters Static address	are: A-Z, a-z, 0-9 and _
	Create a bridge over multiple interfaces Cover the following interface	DHCP dient Unmanaged DHCPv6 dient PPP PPtP PPtP PPPoE PPPoATM	er: "apcli0" er: "apcli1" 1: "eth0"
> DTU > System > Logout		UMTS/GPRS/EV-DO LZTP GRE TUN TAP SSTP	"eth0.1" (lan) "eth0.2" (wan_wired) er: "eth1" (wan_4g) er: "ip6gre0" er: "ip6tnl0"
		Relay bridge O JE Ethernet Adap O Mireless Netw O JE Custom Interfa	er: "ra0" ter: "teql0" ork: Master "GW-R4513-0092" (lan) ace:

Figure41 add GRE interface



		^				
			Interfaces - TEST			
>	Status		On this page you can config network interfaces separate	gure the netwo ed by spaces. Y	ork interfaces. You ca ou can also use VLAI	n bridge several interfaces by ticking N notation INTERFACE.VLANNR (e.g.:
	Convisoo			_		
>	Services		Common Configuration	n		
~	Network		General Setup Advanc	ed Settings	Firewall Settings	
	Interfaces		Status		gre-test	RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)
	SIM Card					
	IPSEC		Protocol	GRE	~	
			Remote Address			
	Wifi		Local Address			
	AP Client		Remote Tunnel Address			
	DHCP and DNS		Local Tunnel Address			
	Hostnames					
	Static Routes					Save Apply

Figure 42 GRE general setting

Remote address: IP address for WAN port of terminal GRE

Local address: the local address of wan_wried and wan_4g, users need fill in one of them accodeing to need. Remote Tunnel Address: the opposite GRE tunnel IP address , and the setting of subnet masks can be expressed as follows:

255.0.0.0 can be written as IP/8, 255.255.0.0 can be written as IP/16, 255.255.255.0 can be written as IP/24, 255.255.255.255 can be written as IP/32

For example, 172.16.10.1/24

Local tunnel IP: local GRE tunnel IP address

GW-R4513	Interfaces - TEST		
> Status	On this page you can configure the netw network interfaces separated by spaces.	vork interfaces. You can b You can also use <u>VLAN</u> ne	ridge several interfaces by ticking the * otation INTERFACE.VLANNR (<u>e.g.</u> ; eth0
> Services	Common Configuration		
✓ Network	General Setup Advanced Settings	Firewall Settings	
Interfaces	TTL Set 255		
SIM Card	Override MTU 1400		
IPSEC			
Wifi			Save Apply
AP Client			
DHCP and DNS			

Figure 43 GRE advance setting



TTL settings: set the TTL of the GRE channel, by default 255 Set MTU: set the MTU of the GRE channel, by default 1400

3.4.7. SSTP Client

GW-R4	513		Create Interfa	ace				
			Name of	the new	CCTD			
> Status			Name of	interface	O The allowed chains and the allowed chain	racters are: A-Z , a	-z, 0-9 and _	
> Services			Protocol of	the new	SSTP	~		
			i	interface	Static address			
> Network					DHCP client			
> WAN/LAN	N Port		Rack to Over	viow	DHCPv6 dient			Submit
			S Back to Over	VIEW	PPP			Submit
> Firewall					PPPOE			
> DTU					PPPoATM			
					L2TP			
> System					GRE			
∖ Logout					TUN TAP			
					SSTP			
					Relay bridge			
			Figure44 a	add new i	interface			
	Commo	on Configuration	-					
	General S	Setup Advanced	d Settings	Firewall	Settings			
			_					
		Status		[RX: 0.00 B (0	Pkts.)
				sstp	-SSTP		TX : 0.00 B (0	Pkts.)
					_			
		Protocol	SSTP	`	· .			
						1		
		SSTP Server						
	PAP/0	CHAP username						
	PAP/0	CHAP password			8			
						_		

Figure 45 SSTP general setting

Save

Apply

SSTP server: the IP or domain name of the SSTP server.



PAP/CHAP Username: user name of SSTP

PAP/CHAP password: the password of SSTP

Note

Advanced settings can refer to advanced settings of PPTP.

3.5. VPN+ Port Forward

VPN+ port forward, can realize remote access between 4G routers.

Devices under routers can directly communicate with socket by port forwards.

GW-R4513	Interfaces		
> Status	Interface Overview		
> Services	Network	Status	Actions
√ Network	TEST Pptp-test	RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	# Connect Image: Stop Image: Connect Image: Stop Image: Connect Image: Stop Image: Connect Image: Stop
SIM Card	LAN ළු (දුස් මා) br-lan	Uptime: 5h 9m 7s MAC-Address: D8:80:4C:00:00:92 RX: 4.87 MB (39182 Plcts.) TX: 23.32 MB (45199 Plcts.) IPv4: 192.168.1.1/24	 Connect Stop Edit Delete
Wifi	WAN_4G	IPv6: FDE8:24A3:858:0:0:0:1/60 Uptime: 5h 8m 53s MAC-Address: 0A:C1:2E:17:F5:18 RX: 18:78 MB (29884 Pkts.)	Connect Stop
AP Client	eth1	TX: 2.96 MB (24065 Pkts.) IPv4: 10.243.10.217/30	C Edit Delete
DHCP and DNS	WAN_WIRED	RX : 0.00 B (0 Pkts.)	& Connect 🚳 Stop
Hostnames	pppoe-wan_wired	TA: 0.00 B (0 PK(S.)	🗭 Edit 🧰 Delete
Static Routes	Add new interface		
Diagnostics			
GW-K4015			
<u>Status</u>	Firewall - Port Forwards		
> Services	Port forwarding allows remote compute	rs on the Internet to connect to a specific computer or service	within the private LAN.
Notwork	Port Forwards		
	Name Match	Forward to Enab	le Sort
> WAN/LAN Port	IPv4-TCP I	IDP	
V Firewall	- From any host Via any rout	in wan any host in lan ☑ ter IP	 ♦ ♦ Delete
General Settings			
Port Forwards		New port forward:	
Traffic Rules	Name	Protocol External External Internal zone port zone	Internal IP Internal address port
Custom Rules		TCP+UDP v wanv lan v	✓ 🗘 Add
Access Restrictions			
Rate Limiting		Save Apply	
> DTU			

Figure46 port forwards

The WAN port is not inserted, only using 4G interface, and create a VPN Client interface. 1\two PC, 4G router one (using 4G interface)



Be Honest, Do Best !	GW-R4513 software manual	Technical Support: h.usriot.com
2\The IP address obtained by the WAN	N_4G interface is 192.168.109.7	
3\Set port forwarding, external po	ort 4444, intranet IP address 192.16	8.1.247 (PC1), intranet port 4444 on
192.168.1.247, create TCP Server, liste	en for port 4444	

4\Create a TCP Client on a PC 2 (note that PC2 is on another network, not under this router) with the target IP address 192.168.109.7 and the target port 4444, which should be able to connect to the TCP Server under the 4G router and communicate.

3.6. Host Names

GW-R4513	Hostnames
Status	Host entries
Services	Hostname
Network	
I/LAN Port	This section contains
vall	La Add
J	Save /
System	

Figure47 host names

Routers can implement custom domain name resolution. Set the hostname (domain name) you want, such as "pc-linux" to the hostname, with the corresponding IP address 192.168.0.9. In this way, the mapping relationship between host name and IP address can be realized.

Note that this function will effect after the router restart.

3.7. Static Router

Table8 static router parameter

Name	Info	Note
Interface	Port for executing rules	eth0.2
Remote IP	Remote IP or address	192.168.1.0
Subnet	The remote subnet	255.255.255.0
Gateway	Address to be forwarded to	192.168.0.202
Metric		0
MTU	Maximum transmission unit	1500

Static routing describes the routing rules of Ethernet packets.



3.8. Setup Limit Speed

✓ Network	^		
Interfaces		Quality of Service	
		A traffic controll for interfac	es; Note: Setting the LAN port will limit the speed of
SIM Card		Interfaces	
IPSEC		interfaces	
Wifi			
		Setup interface	lan 🗸
AP Client		Enable	
DHCP and DNS			
Hostnames		Setup Limit Speed (kbit/s)	1024
Static Routes			
Diagnostics		Setup interface	wan wired 🗸
0.05			_
405		Enable	
> WAN/LAN Port		Setup Limit Speed (kbit/s)	
> Firewall		(
		🔂 Add	

Figure48 setup limit speed



3.9. Firewall

3.9.1. General Setting

> Status > Services <u>Network</u>			Output Forward	accept v reject v						
> WAN/LA	N Port	Zones	Zone ⇒ F	orwardings	Input	Output	Forward	Masquerading	MSS clamping	
General S Port Forv Traffic Ru	ettings /ards		lan: lan: 👮	≝ ∰ ⇒ Wan	accept 🗸	accept 🗸	accept 🗸			C Edit
Custom F Access Re	Rules	wan: v	van_wired: 💼	wan_4g; 🛃 ⇒ REJECT	accept 🗸	accept 🗸	reject 🗸			C Edit
Rate Limi	ting	🔓 Add			Save	Apply				激活

Figure 49 general setting of firewall

Rule 1

LAN port to the cable WAN port inbound and forwarding, are accepted.

If a packet comes from a LAN port and wants to access the WAN port, this rule allows packets to be forwarded from the LAN port to the WAN port, which is forwarding.

You can also open the router's web page at LAN port, which is called "inbound".

The router connects to the external network, such as synchronization time, which belongs to "outbound". Rule 2

Wired WAN port and 4G port, accept "inbound", accept "outbound", refuse to "forward".

If there are "inbound" packets, such as someone trying to log in to a router page from a WAN port, then they will be allowed

If there are "outbound" packets, such as routers accessing the extranet through a WAN or 4G port, this action is allowed If there is a "forward" packet, such as a packet from a WAN port that wants to forward to a 4G port, this action is rejected.

3.9.2. Traffic Rules

Communication rules can selectively filter specific Internet data types and block Internet access requests, thereby enhancing network security.



3.9.2.1. IP-Reject

> Status	To any host in any zone
> Services	Open ports on router:
> Network	Name Protocol External port
> WAN/LAN Port	New input rule TCP+UDP v Add
√ Firewall	New forward rule:
General Settings	Name Source zone Destination zone
Port Forwards	New forward rule Ian v wan v S Add and edit
Traffic Rules	
Custom Rules	Source NAT Source NAT is a specific form of masquerading which allows fine grained control over the source IP used for outgo addresses to internal subnets.
Access Restrictions	Name Match Action Enal

Figure50 IP-reject 1

Source area selection LAN, source MAC address and source address are all selected (if only a specific IP within the LAN is restricted to access a particular IP outside the network, then fill in the IP address or MAC address here)

	Name	ip-reject
Services	Restrict to address family	IPv4 and IPv6 🗸
> Network	Protocol	TCP+UDP v
> WAN/LAN Port	Match ICMP type	any 🗸
∽ Firewall	Source zone	O Any zone
General Settings		🖲 lan: lan: 🕎 🙊
Port Forwards		O wan: wan_wired: 🛅 wan_4g: 🔎
Traffic Rules	Source MAC address	any 🗸
Custom Rules	Source address	any Y
Access Restrictions	Source port	
Rate Limiting	Destination zone	O Device (input)
> DTU		O Any zone (forward)
> System		O lan: lan: 🕎 👷
		🖲 wan: wan_wired: 📄 wan_4g: 🚂

Figure51 IP-reject 2





Be Honest, Do Best !	GW-R4513 software manu	al Technical Support: h.usriot.com
> Status	Source MAC address	any 🗸
Services	Source address	any 🗸
> Network	Source port	
> WAN/LAN Port	Destination zone	O Device (input)
✓ Firewall		O Any zone (forward)
General Settings		O lan: lan: 🕎 🙊
Port Forwards		🔍 wan: wan_wired: 🛐 wan_4g: 🛃
Traffic Rules	Destination address	any
Custom Rules	Destination port	
Access Postrictions	Action	reject v
	Extra arguments	Deccer additional arguments to intables. Use with sarel
Kate Limiting		Passes additional arguments to iptables. Use with Care:
> DTU	Back to Overview	Save Apply
> System		
	Figure52 IP-	reject 3
	to any host in any zone	
ip-reject	Any traffic From <i>any host</i> in <i>lan</i> To <i>any host</i> in wan	Refuse forward V V C
	to any nost in wall	

Figure53 IP-reject 4



3.9.2.2. IP-Allow

>	Services	
	N - to	Name ip-allow
	Network	Restrict to address family IPv4 and IPv6 <
>	WAN/LAN Port	Protocol TCP+UDP ~
~	Firewall	Match ICMP type any
	General Settings	Source zone O Any zone
	Port Forwards	🖲 lan: 📰 🙊
	Traffic Rules	O wan: wan_wired: 📄 wan_4g: 🧕
	Custom Rules	Source MAC address any
	Access Restrictions	Source address any
	Rate Limiting	Source port any
>	DTU	Destination zone O Device (input)
>	System	O Any zone (forward)

Figure54 IP-allow 1

> WAN/LAN Port Ο Any zone (forward) Ο ✓ Firewall lan: 🛛 lan: 🕎 👳 ۲ wan: wan_wired: 💼 wan_4g: 🚂 **General Settings** \sim Destination address Port Forwards any Destination port Traffic Rules \sim Action accept **Custom Rules** Extra arguments **Access Restrictions** Passes additional arguments to iptables. Use with care! **Rate Limiting**

Figure 55 IP-allow 2

Action: accept, then apply and save.



Be Honest, Do Be	GW-R4513 software manual	I Technical Support: h.usriot.com
Forward	From any host in wan To any host in any zone	per second
ip-allow	Any traffic From <i>any host</i> in <i>lan</i> To <i>any host</i> in <i>wan</i>	Accept forward V • The Delete

Figure56 IP-allow 3

Next, set a rule that all communications are rejected. The source address is set to All , the target address is set to All, and the action selection is rejected. Note that the order of the two rules must be the rule of allow before, and the rule of rejection is later.

3.9.3. NAT Function

3.9.3.1. MASQ

MASQ, MASQUREADE, address masking, will leave the packet source IP into a router interface IP address, such as check IP dynamic masking, the system will flow out of the router packet source IP address changed to WAN port IP address.

Services		Forward reject 🗸						
> Network								
> WAN/LAN Port	Zon	es						
√ Firewall		Zone ⇒ Forwardings	Input	Output	Forward	Masquerading	MSS clamping	
General Settings								
Port Forwards		lan: lan: ﷺ	accept 🗸	accept 🗸	accept 🗸			C Edit
Traffic Rules								
Custom Rules		ran: wan_wired: wan_4g: 🛃 ⇒ REJECT	accept 🗸	accept ~	reject 🗸		V	Edit
Access Restrictions								
Rate Limiting	🕻 Ad	d				N		
> DTU			Save	Apply				
		Figure57 M	ASO set	ting				

3.9.3.2. SNAT

Source NAT changes the source address of the packet leaving the router, closing the IP dynamic camouflage of the WAN port first when used.



	Be Hollest, Do Best !	GW-R4513 software manual				Technical Support: h.usriot.com				
	Network	I UIWalu								
>	WAN/LAN Port	Zones								
~	Firewall	Zone ⇒ Forwardings	Input	Output	Forward	Masquerading	MSS clamping			
	General Settings							🗹 Edit		
	Port Forwards	lan: lan: ﷺ ⇒ wan	accept 🗸	accept 🗸	accept 🗸			💼 Delete		
	Traffic Rules				_			🕑 Edit		
	Custom Rules	wan: wan_wired: 🐞 wan_4g: 🖉 = [REJECT]	accept 🗸	accept 🗸	reject 🗸			🛅 Delete		
	Access Restrictions	🚨 Add								
>	o DTU		Save	Apply						

Figure58 close MASQ

Then setup SourceNAT.

> WAN/LAN Port	address				
✓ Firewall	Name	Match	Action	Enable	Sort
General Settings Port Forwards	test	Any traffic From any host in lan To any host in wan	Rewrite to source IP 192.168.1.1		Edit Delete
Traffic Rules	New source	rre NAT			
Custom Rules	Name	Source zone	Destination zone To source IP	To source	e port
Access Restrictions	test	lan 🗸	wan 🗸 192.168.9.1	✓ Do not rewrite	S Add and edit
Rate Limiting					
> DTU			Save Apply		
		Figure	e59 NAT setting1		
> Services		Protocol	All protocols	" custom" and the	n entering protocols separated by sp
> Network		Source zone	🖲 lan: lan: 🐨 💌		
WAN/LAN Port			O wan: wan_wired: 🖻 wa	n_4g: 🔎	
√ Firewall		Source IP address	any		
General Settings		Source port	any	- 41	4 4
Port Forwards			Match incoming traffic originating fro	m the given source por	rt or port range on the client host.
Traffic Rules		Destination zone	O lan: lan: 🕎 👷		
Custom Rules			🖲 wan: wan_wired: 🛅 wa	n_4g: 🗾	
Access Restrictions		Destination IP address	~		
Rate Limiting		Destination port	any Match forwarded traffic to the given of the given	destination port or port	: range.
> DTU		SNAT IP address	192.168.9.1	ddress.	

Figure60 NAT setting2

Keep the source IP, port, the remote IP, port by default, then save.



> WAN/LAN Port

 O Best !
 GW-R4513 software manual
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 Source NAT is a specific form of masquerading which allows fine grained control over the source IP used for outgoing traffic, for example to map multiple WAN

 Addresses to internal subnets.

> Firewall	Name	Match		Action	Enable	Sort	
General Settings Port Forwards	test	Any traffic From <i>any host</i> in <i>lan</i> To <i>any host</i> in <i>wan</i>	Rewrite to	o source IP <i>192.168.9.1</i>		• •	Z Edit
Traffic Rules	New source NAT:						
Custom Rules	Name	Source zone	Destination zone	To source IP	To source	e port	
Access Restrictions		lan v	wan 🗸	Please choose 🗸			💕 Add and edit

Figure61 NAT setting3

3.9.3.3. DNAT

DNA T is the replacement of destination addresses, replacing the destination IP address of packets that enter the router with the destination IP address of the WAN port IP with the user-set IP address

3.9.3.3.1. Port Forward



3.9.3.3.1.1. Introduce

Figure63 port forward setting2

Then save the settings.

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192.168.1.1:80 is the web server of routers. If we want to access a device in the LAN from the outside network, we need to set the mapping from the outside network to the inside network, such as setting the outside network port to 81, the inside network IP 192.168.1.1, and the inside network port to 80.

When we access the 81 port from the WAN port, the access request will be transferred to 192.168.1.1:80.

3.9.3.3.1.2. Port Forward on 4G Interface

Table9 port forward parameter

Use environment	Content	Info
Router	4G router	
	SIM card	APN card (IP: 10.201.20.47)
PC	IP of PC in LAN	192.168.1.247
	Listing port of PC	12129

First, fill in the APN address on router.



Figure64 4G port forward setting1

Then, add the port forward.



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Network	Name	Match		Forwar	d to	Ena	ble	Sort	
WAN/LAN Port	-	IPv4-TCP, UDP From <i>any host</i> in <i>wan</i>		any host	in <i>lan</i>		1	•	🛅 Delet
Firewall		Via any router IP							
General Settings				New	port forwar	d:			
Port Forwards		Name	Protocol	Externa zone	al External port	Internal zone	Internal IP address	Internal port	
Traffic Rules		forwardtest	TCP	wan v	80	lan 🗸	192.168.56. ~	80	🖪 Add
Custom Rules									1
Access Restrictions				Sav	e Appl	/			/
Rate Limiting									

Figure65 4G port forward setting2

After setup all parameters, restart the router.

3.9.3.3.2. NAT DMZ

Port mapping is to map a specified port of WAN port address to a host in the intranet. DMZ function maps all ports of WAN port address to a host. Setting interface and port forwarding are in the same interface. When setting up, the external port is not filled in.

> WAN/LAN Port	- From any host in wan Via any router IP		any host in lan			• •	📋 Delete		
General Settings	forwardtest	IPv4-TCP From <i>any host</i> in <i>w</i> a Via <i>any router IP</i> at po	an rt <i>80</i>	IP <i>192.16</i>	8.56.1, por	t <i>80</i> in <i>lan</i>		•	💼 Delete
Port Forwards									
Traffic Rules				New po	rt forward	l:			
Custom Rules		Name	Protocol	External zone	External port	Internal zone	Internal IP address	Internal port	
Access Restrictions		DMZ	TCP+UDP ~	wan ~		lan 🗸	192.168.1.1 ~		🔂 Add
					em	pty			
Rate Limiting				Save	Apply				

Figure66 DMZ setting1

Then add and save.

vices					
etwork	Name	Match	Forward to	Enable	Sort
Network					
WAN/LAN Port		IPv4-TCP, UDP		_	
	-	From any host in wan Via any router IP	any host in lan	$\mathbf{\mathbf{Y}}$	•
Firewall					
0 10 11	forwardtest	IPv4-TCP From any host in wan	IP 192,168,56,1, port 80 in lan		•
General Settings		Via any router IP at port 80			
Port Forwards		IPv4-TCP, UDP			
	DMZ	From any host in wan	IP 192.168.1.10 in lan	\checkmark	• •
Traffic Rules		Via any router IP			
Custom Rules			New port forward:		
Access Restrictions			. External External Internal	Internal IP In	ternal
		Name Pro	zone port zone	address	port

Figure67 DMZ setting2

As shown, all ports of the WAN address are mapped to the host 192.168.1.10 of the intranet. Note



Port mapping and DMZ functions can't be used at the same time.

3.9.4. Custom Rules

Custom rules can implement the preceding functions and need to write commands to run. Support Iptables command.

3.9.5. Access Restrictions

Access restriction implements the access restriction to the specified domain name, supports the blacklist and whitelist settings of domain name addresses. When a blacklist is selected, the device connecting the router can't access the domain name of the blacklist, and other domain name addresses can be accessed normally. When a whitelist is selected, the device connecting the router can access the domain name of the whitelist only. This function is turned off by default

3.9.5.1. Domain Blacklist

Services			
Network	mode b	lack list 🗸	
VAN/LAN Port			
Firewall			
General Settings	name	domain name	Enable
Port Forwards	test	www.baidu.com	
ffic Rules			
stom Rules		N	lew firewall rule
		name	domain name
ccess Restrictions			
ate Limiting			
υτυ		s	ave Apply
		Figure68 blacklist	



3.9.5.2. Whitelist



3.9.6. Rate Limiting

Network speed control can limit the speed of devices connecting to routers, support IP segment address speed limit and MAC address speed limit, and rules can be added at the same time. IP segment speed limit, need to fill in the initial IP address, termination IP address, downlink rate, uplink rate, MAC address speed limit, need to select MAC, fill in the uplink rate, downlink rate, then save immediately take effect. The minimum uplink downlink rate is 10KB/S. If the set value is less than 10, it will be processed by 10. As shown in figure 192.168.1.10-192.168.1.1.100, the maximum upstream and downstream rate of the network is 100KB/S, and the maximum upstream and downstream rate of the network is 200KB/S for MAC address: 00:25:AB:84:66:6E. The downlink rate is usually greater than the uplink speed.

Descending rate is greater than the downward rate							
GW-R4513	Restrict access to th	e Internet speed o	of ip				
> Status	start ip	end ip	downstream (KB/S)	upstream (KB/S)			
> Services							
Natural			This section contains no values yet				
Network							
> WAN/LAN Port			New firewall rule				
✓ Firewall	start ip	end ip	downstream (KB/S) upstream (KB/S)				
General Settings				🚨 Add			
Port Forwards							
Traffic Rules	MAC		downstream (KB/S)	upstream (KB/S)			
Custom Rules							
Access Restrictions	Access Restrictions This section contains no values yet						
Rate Limiting							
> DTU			New firewall rule	海北于			

Figure70 rate limiting



Table10 rate limiting parameter							
Function	Parameter setting	Note					
Start IP	The start IP of rate limiting	IPV4					
End IP	The end IP of rate limiting	IPV4					
Upstream	The max of upstream	Unit bit/s					
Downstream	The min of downstream	Unit bit/s					
MAC	The MAC of rate limiting	MAC address of device					

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3.10. Task Scheduler

Note: this function can't delete the original planned tasks, otherwise it may lead to abnormal operation of the router. This router has reserved the interface of scheduled tasks, which enables users to manage the router regularly.



Figure71 task scheduler

If you need to add custom tasks, just start a new line in the input box and enter the relevant timed task instructions. Format of scheduled task list:

[minute] [hour] [day of month] [month] [day of week] [program to be run]

The range of parameters is:

Minute (0-59), hour (0-23), day of month (1-31), month (1-12), day of week (0-7, 0 or 7)

The values of each parameter can be divided into 4 spacers.

"*" expressing arbitrary

- "-" scope of representation
- ", "represents multiple values enumerated
- "/" every time



3.11. Webpage Sitting

Connect PC and GW-R4513 with LAN port, or connect WLAN wireless, then login the webpage of setting.

Table11 GW-R4513 default parameter

Parameter	Default setting
SSID	GW-R4513-XXXX
IP of LAN port	192.168.1.1
User name	root
Password	root
WIFI key	12345678

Make PC join the WIFI GW-R4513-XXXX, enter 192.168.1.1, the user name and password both are root.

root		
Ŷ ••••		
Please enter your username and	d password.	
Login	Reset	
Login	Reset	

Figure72 login webpage



3.12. Web Function

Status	
System	
Hostname	GW-R4513
Firmware Version	V1.0.6(EN)
Local Time	Thu Nov 1 01:55:01 2018
Uptime	4h 51m 32s
Load Average	3.58, 3.74, 4.03

Figure73 status

Interfaces

Interface Overview

Network	Status	Actions
TEST pptp-test	RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	ConnectStopEditDelete
LAN br-lan	Uptime: 4h 53m 1s MAC-Address: D8:B0:4C:00:00:92 RX: 3.23 MB (35219 Pkts.) TX: 6.24 MB (16053 Pkts.) IPv4: 192.168.1.1/24 IPv6: FDEB:24A3:B5B:0:0:0:0:1/60	ConnectStopEditDelete
WAN_4G eth1	Uptime: 4h 52m 46s MAC-Address: 2E:6F:B5:39:F8:B3 RX: 4.64 MB (10022 Pkts.) TX: 2.48 MB (28322 Pkts.) IPv4: 10.59.58.25/30	ConnectStopEditDelete
WAN_WIRED	RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	 Connect Stop Edit Delete

Figure 74 interface overview



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System Here you can configure the basic aspects of your device like its hostname or the timezone. > Status System Properties Services Language and Style Network General Settings Logging > WAN/LAN Port Local Time Thu Nov 1 02:10:54 2018 🔲 Sync with browser > GW-R4513 Hostname > Firewall \sim America/New York Timezone > DTU 🗸 System **Time Synchronization** System Administration Enable NTP client Provide NTP server Task scheduler Ô 0.openwrt.pool.ntp.org NTP server candidates Backup/Upgrade ŵ 1.openwrt.pool.ntp.org 2.openwrt.pool.ntp.org 亩 Reboot 4 3.openwrt.pool.ntp.org

Figure 76 system properties



4. DTU Function



Figure77 DTU function

4.1. Work Mode





Figure78 mode select

4.1.1. Net Transparent Transmission Mode

4.1.1.1. Mode Declaration



Figure 79 net transparent transmission mode

GW-R4513 support 4 socket connection: socket A, socket B, socket C, socket D, they are independent of each other. Socket A support: TCP Server、TCP Client、UDP Server、UDP Client Socket B/C/D support TCP Client、UDP Server、UDP Client The AT commands of sotting:

The AT commands of setting:

- Set the work mode :net transparent AT+WKMOD=NET
- 2. Enable socket A AT+SOCKAEN=ON
- 3. Setting socket A work at TCP Client mode AT+SOCKA=TCPC, test.usr.cn,2317
- 4. Restart the module

AT+Z



Be Honest, Do Best !	GW-R4513 soft	ware manual	Technical Support: h.usriot.com
GW-R4513 V1.0.5 File Language Help			×
[PC Serial Parameters] ComName COM7 V B	audRate 115200 🗸 Parity/Data/Stop NONE 🗸	8 🗸 1 🗸 🖬 Close PC Serial	
Choose Work Mode		Operation and Hints	
Transparent Mode	○ HTTPD Client Mode	Query all parameters	🔚 Save current parameters
	DP Serial	Enter Serial AT command mode	Exit Serial AT command mode
PC NetWork	M2M device Serial device	Help message Software Restart	Hardware Restart aset to factory settin
ransparent Mode parameters		Query RSSI Query network info	Query version
Enable Socket A IP&Port Link Type	rest.usr.cn 2317	OK AT+UARTFT=10	
Enable Socket B		AT+UARTFT=10 OK	
Enable Socket C		AT+UARTFL=1000 AT+UARTFL=1000	
Enable Socket D		Operation complete AT+Z	
	v	AT+Z OK	¥
Modem Parameters		Router params	
Serial Serial BaudRate 11520 Parity/Data/Stop NONE			
More Nore	Fackage Length(Dytes) 1000	Send via Serial Port 👻	♥》Send → 湯次活 V

Figure80 setup software



4.1.2. HTTPD Mode

4.1.2.1. Mode Declaration



Figure81 HTTPD Mode

The AT commands of setting:

- 1. Set the work mode : HTTPD AT+WKMOD=HTTPD
- Set the type of request: AT+HTPTP=GET
- 3. Set the URL AT+HTPURL=/1.php[3F]
- Set the server AT+HTPSV=test.usr.cn,80
- Set the head of HTTP AT+HTPHD=Connection: close[0D][0A]
- 6. Set the overtime of request
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AT+HTPTO=10

 Set whether to filter information back to head AT+HTPFLT=ON

8. Restart the module

AT+Z 🔮 GW-R4513 V1.0.5 File Language Help [PC Serial Parameters] ComName COM7 BaudRate 115200 Parity/Data/Stop NONE ~ 8 1 Close PC Serial Choose Work Mode Operation and Hints Transparent Mode O UDC Mode HTTPD Client Mode Query all parameters 🔚 Save current parameters HTTP HTTP Serial Enter Serial AT command mode Exit Serial AT command mode HTTP server M2M device Help message Software Restart Hardware Restart set to factory settin NetWork Serial device HTTPD Client Mode parameters Query RSSI Query network info Query version HTTP request type GET AT+HTPHD? \sim AT+HTPHD? HTTP URL 1./php[3F] +HTPHD:Connection:close[0D][0A] HTTP server address test.usr.cn AT+HTPTO? HTTP server port 80 AT+HTPTO? +HTPTO:10 Over Time (s) 10 AT+HTPFLT? HTTP request Header Connection:close[0D][0A] AT+HTPFLT? Filter HTTP Header +HTPFLT:ON Operation complete Router params ~ Modem Parameters Serial 115200 ~ Serial BaudRate 1 NONE 8 Parity/Data/Stop \sim \sim Package Length(Bytes) 1000 kage Time Interval(ms) 10 Send via Serial Port 👻 🕘 Send 🕞 More

Figure82 setting software



4.1.3. UDC Mode

4.1.3.1. Mode Declaration



Figure83 UDC Mode



WARA13 V1.0 - - × File Language Hair File	Be He	onest, Do Best !		GW-R4513 so	oftware 1	nanual		Technical Supp	ort: h.usriot.com
UP: Stratel parameters Concer Work Mode Occose Work Mode Over Val Serial Transparent Mode UDC Mode TCP/UDP Serial PC NetWork NetWork M2M device Social A UPAPent Social A Unk Type TCP/UDP Serial Social A Unk Type CC analysis Social A DC Mode parameters Query RSSI Query RSSI Query network Info Query Netson AT+HTPELTON Operation complete +++ AT+ENTM AT+ENTM <td< th=""><th>GW-R4513 V1.0.5 File Language He</th><th></th><th>-115200</th><th></th><th>0</th><th></th><th></th><th></th><th>- 🗆 X</th></td<>	GW-R4513 V1.0.5 File Language He		-115200		0				- 🗆 X
Choose Work Mode Operation and Hits Choose Work Mode OPEration and Hits TGPUDP TGPUD TGPUDP TGPUDP TGPUD TGPUDP TGPUDP TGPUD TGPUD TGPUDP TGPUDP TGPUD T	[PC Serial Parameters	: ComName COM7 V BaudR	ate 115200 V Par	ty/Data/Stop NONE	× 8 ×		ose PC Serial		
Or Tansparent Mode ● UDC Mode ● HTTPD Clent Mode Image TrepUDP Serial Serial device PC NetWork M2M device Image TrepUDP M2M device Serial device Image TrepUDP Image TrepUDP Serial device Image TrepUDP M2M device Serial device Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image TrepUDP Image	Choose Work Mode				Operat	ion and Hints			
Image: CPUUP CPUUP Serial Enter Serial AT command mode Ext. Serial AT command mode IDC Mode parameters Query Network info Query version IDC Mode parameters Operation complete AT+HTPELTO IDC Mode parameters AT+ENTM AT+ENTM IDC Brable Social BaudRate 11520 v Serial Serial BaudRate 11520 v IDC Mode parameters Router parameters Router parameters	O Transparent Mode	e 🔘 UDC Mode	🔿 НТТРД СІ	ent Mode		🗟 Query	all parameters	🔚 Save curre	ent parameters
PC NetWork M2M device Senial device JDC Mode parameters Query RSSI Query network info Query network info <t< td=""><td></td><td></td><td>Serial</td><td>▶ 🛄</td><td></td><td>Enter Serial A</td><td>T command mode</td><td>Exit Serial AT o</td><td>ommand mode</td></t<>			Serial	▶ 🛄		Enter Serial A	T command mode	Exit Serial AT o	ommand mode
JDC Mode parameters Query RSSI Query version Pable T+HTPL.T2 Link Type TOPC A Link Type TOPC Operation complete ++++ AT+HTPL.T0 Operation complete AT+HTPL.T0 AT+HTPL.T0 Denable Operation complete Socket C AT+HTM Inable AT+HTM Socket D AT+HTM Modem Parameters Router parameters Serial Serial BaudRate 11520(~) Basin 1 Nore Serial Pott + 100	PC	NetWork	M2M device	Serial device		Help message	Software Restart	Hardware Restart	eset to factory settin
Pable Socket A Ink Type TCPC Socket B Socket B Socket C Enable Socket C AT+ENTM	JDC Mode parameters	1				Ouery RSSI	Query network info	Query version	
Socket A IPRPort test.usr.cn [2317] Link Type TCPC Socket B Socket C Enable Socket C Enable Socket C Enable Socket C HT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM AT+ENTM Boole Woder Boole AT+ENTM Boole Boole Moder Parky/Data/Stop Nowe	🗹 Enable				^	Q,	4 ,		
Modern Parameters Serial Serial BaudRate 11520(~) Party/Data/Stop NONE ~ 8 ~ 1 ~ kage Time Interval(ms) 10 Package Length(Bytes) 1000 Send via Serial Port ~ © Send ~	Enable Socket B Enable Socket C Enable Socket D	Link Type TCP			AT+HT +HTPFI Operati +T+EN AT+EN AT+EN AT+EN AT+EN +OK +T+EN a a +OK	PFLT? LT:ON ion complete TM TM TM			
Modem Parameters Router params Serial Serial BaudRate 11520(~) Parity/Data/Stop NONE 8 1 More Send via Serial Port + Send via Serial Port +					• .			•	·
Serial Serial BaudRate 11520(~) Parity/Data/Stop NONE~ 8 ~ 1 ~ More kage Time Interval(ms) 10 Package Length(Bytes) 1000 Send via Serial Port ~ Send via Serial Port ~	Modem Parameters				Router	params	~		
More kage Time Interval(ms) 10 Package Length(Bytes) 1000 Send via Serial Port •	Serial	Serial BaudRate 11520(~ Parity/Data/Stop NONE ~	8 ~	1 ~					
	More k	age Time Interval(ms) 10	Package Length(Bytes) 1000	Send	via Serial Port 👻			🧐 Send 👻

Figure84 setting software

The AT commands for setting GW-R4513:

- 1. Set the work mode: UDC AT+WKMOD=UDC
- 2. Enable socket A AT+SOCKAEN=ON
- 3. Set device work as TCP server, the server address is test.usr.cn, the port is 2317 AT+SOCKA=TCPC,test.usr.cn,2317
- 4. Enable heartbeat package
- AT+HEARTEN=ON
- 5. Set the time interval AT+HEARTTM=30
- 6. Enable registration package AT+REGEN=ON
- 7. Set the registration mode: UDC AT+WKMOD=UDC
- Set the ID of UDC device AT+UDCID=30303030303030303030303
 The ID parameter here is hex form.
- 9. Send save command AT+S



4.2. Serial Port

4.2.1. Basic Parameters

rices work work N/LAN Port wall eral Settings HAL KKET A	Stat	us
Network WAN/LAN Port Firewall DTU General Settings SERIAL SOCKET A Package Interval 100	5	Services
WAN/LAN Port Baud Rate 115200 × Firewall Data Bits 8 × DTU Stop Bits 1 × General Settings Pairty NONE × SERIAL Package Interval 10 SOCKET A 00 100		Network
rewall Baud Rate 11520 \rightarrow TU Data Bits 8 \rightarrow eneral Settings 1 \rightarrow 1 \rightarrow ERIAL Package Interval 10 OCKET A Package Length 1000	W	/AN/LAN Port
Data Bits 8 stop Bits 1 Pairty NONE AL Package Interval Package Length 1000	Firev	vall
Settings 1 NONE NONE A Pairty 100 A Package Interval 10 B	DTU	
Pairty NONE Package Interval 10 Package Length 1000	Gener	al Settings
Package Interval 10 OCKET A Package Length 1000 OCKET B Package Length 1000	s	FRIAL
Package Length 1000	s	
		SOCKET B

Figure85 serial port setting

	Parameter	
Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200,	
	230400	
Data bit	8	
Stop bit	1,2	
Check bit	NONE	
	EVEN	
	ODD	
	MARK	
485	NFC	
	485 communication	

4.2.2. Frame Forming Mechanism

4.2.2.1. Time Triggered Mode

When receiving data from UART, GW-R4513 continuously checks the interval between 2 adjacent bytes. If the interval



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time is greater than or equal to a certain "time threshold", a frame is considered to end, otherwise data is received until it is greater than or equal to the packing length (default is 1000 bytes). The range can be set to be 10ms~60000ms. The default time is 10ms.

This parameter can be set accodeing to the AT command, AT+UARTFT=10.



Figure86 time triggered mode

4.2.2.2. Length Triggered Mode

When receiving data from UART, GW-R4513 will check the number of bytes received continuously. If the number of bytes received reaches a certain "length threshold", it is considered that the end of a frame. The range of settings is 1~4096. Factory default 1000.

This parameter can be set accodeing to the AT command, AT+UARTFL=<length>





4.3. Characteristic Functions

4.3.1. Registration Package



Figure89 registration package setting

When work at the net transparent transmission mode, the user can choose to send register package from device to server. The registration package is designed to enable the server to identify the data source device, or as a password to obtain authorization for the functions. Registered packets can be sent when a connection between the device and the server is established, or they can be spliced together at the front of each packet as a data package. The data of the registration package can be ICCID code, IMEI code, or custom registration data.

Table13 AT commands

Command	Function	Default parameter
AT+ REGEN	Query/set enable register function	OFF
AT+ REGTP	Query/set the type of register content	USER


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AT+ REGDT	Query/set the info of custom register	0123456789	
AT+ REGSND	Query/set register packet sending mode	DATA	

- 1. Enable register package
 - AT+REGEN=ON
- Set the register type is custom define AT+REGTP=USER
- 3. Set the data of register package AT+REGDT=123456789
- 4. Setting up the registration package is to send registered data as the head of each packet data AT+REGSND=DATA
- 5. Restart



Figure90 setting software



4.3.2. Heartbeat Package



Figure91 heartbeat package setting

When work at net transparent transmission mode, the user can choose to send heartbeat packets to DTU. Heartbeat packets can be sent to the server side of the network, or to the device port of the serial port.

The main purpose of sending to the network side is to maintain the connection with the server.

In order to reduce communication flow, users can choose to send heartbeat packets (query instructions) to serial device instead of sending query instructions from server.

Table14 AT commands

Command	Function	Default parameter
AT+ HEARTEN	Query/set enable heartbeat package	OFF
AT+ HEARTDT	Query/set data of heartbeat package	0123456789
AT+ HEARSND	Query/set heartbeat sending type	NET
AT+ HEARTTM	Query/set transmission interval	30

AT commands

- 1. Enable heartbeat package:
 - AT+HEARTEN=ON
- Set the heartbeat data AT+HEARTDT=123456789
- 3. Set the heartbeat send to net port AT+HEARTTP=NET
- Set the transmission interval AT+HEARTTM=30
- 5. Restart
 - AT+Z



Be F	lonest, Do Best !	GW-R451	13 soft	ware manual	Technical Support:	h.usriot.com
🔮 GW-R4513 V1.	0.5					- 🗆 X
File Language I	Help					
[PC Serial Paramete	ers] : ComName COM7 🛛 🗸 E	audRate 115200 V Parity/Data/Stop	None 🗸	8 🗸 1 🗸 🖬 Close PC Serial		
Choose Work Mode				Operation and Hints		
Transparent Mo	de 🔿 UDC Mode	○ HTTPD Client Mode		Query all parameters	🔚 Save current pa	arameters
		OP Serial		Enter Serial AT command mode	Exit Serial AT comm	and mode
P0	NetWork	M2M device Serial devi	ce	AT+HTPURL?		^
Transparent Mode p	parameters			+HTPURL:/1.php[3F]		
Socket C			^	AT+HTPSV?		
Enable Socket D				AT+HTPSV? +HTPSV:test.cn,80 AT+HTPHD?		
Enable Heartbeat Package	Heartbeat Time(s) Heartbeat Data	3 0123456789		AT+HTPHD? +HTPHD:Connection: close[0D][0A] AT+HTPTO?		
Enable	Heartbeat Send Type	Send data to network 🗸		AT+HTPTO? +HTPTO:10		
Identity Package			1	AT+HTPFLT?		
				AT+HTPFLT? +HTPFLT:OFF		
	No data auto restart time(s)	1800		Operation complete		
Show Source	Socket		v			¥.
Modem Parameters				Router params	• • • • • • • • • • • • • • • • • • •	
Serial	Serial BaudRate 1152 Parity/Data/Stop NONE	00 v 1 v			清灯	舌 Windows
More	kage Time Interval(ms) 10	Package Length(Bytes) 1000		Send via Serial Port 👻	转到	」"设置 》)。 Senat Wind

Figure92 setting software

4.3.3. USR-Cloud

>	Status	^		
>	Services		DTU setup	
	Natwork		The basic setting of the DTU	1
>	Network		Configuration	
>	WAN/LAN Port			
>	Firewall		mode select heart	register
~	DTU		Enable	ON ¥
	General Settings		Туре	CLOUD Y
			register typ	With the server connection to the server to send one more time \checkmark
	SERIAL		Cloud id	12315070301122354453
	SOCKET A		Cloud psw	(*******
	SOCKET B			
	SOCKET C			
				Save Apply



Figure93 USR-Cloud

Note: this function work only when socket A work at TCP Client mode.

Table15 AT commandsCommandFunctionDefault parameterAT+ CLOUDSet the cloud ID and passwordAT+ REGENQuery/set enable register packageOFFAT+ REGTPQuery/set data of register packageUSERAT+ REGSNDQuery/set register sending typeDATA

- 1. Enable register function AT+REGEN=ON
- 2. Set the type is USR-Cloud
 - AT+REGTP=CLOUD
- 3. Set the parameter of socket AT+SOCKA=TCPC,clouddata.usriot.com,15000
- 4. Set the sending type AT+REGSND=LINK
- 5. Set the cloud ID and password

AT+CLOUD=xxxxxxxxxxxxxxxxxxxxxxxxxx

6. Restart

AT+Z

🎡 GW-R4513 V1.0.5					– 🗆 X
File Language Help					
[PC Serial Parameters] : Com	Name COM7 🛛 🗸 Baud	Rate 115200 🗸 F	Parity/Data/Stop NONE \sim	8 V 1 V Close PC Serial	
Choose Work Mode				Operation and Hints	
Transparent Mode	○ UDC Mode	○ НТТРD	Client Mode		Save current parameters
TCP/UDP	TCP/UDP	Series		Enter Serial AT command mode	Exit Serial AT command mode
PC	NetWork	M2M device	Serial device		^
Transparent Mode parameters	5			+HTPURL:/1.php[3F]	
Enable Socket A	IP&Port Clou	iddata.usriot.com PC	15000	AT+HTPSV? AT+HTPSV? +HTPSV:test.cn,80	
Enable Socket B				AT+HTPHD?	
				AT+HTPHD? +HTPHD:Connection: close[0D][0A]	
Enable Socket C				АТ+НТРТО?	
				AT+HTPTO?	



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🔮 GW-R4513 V1.	.0.5				- 🗆 X
File Language H	Help				
[PC Serial Paramete	ers] ComName COM7 🗸 Ba	udRate 115200 🗸 Par	ity/Data/Stop NONE	8 V 1 V Close PC Serial	
Choose Work Mode				Operation and Hints	
Transparent Mo	ode 🔿 UDC Mode	O HTTPD C	ient Mode	Query all parameters	Save current parameters
		P Serial	•	Enter Serial AT command mode	Exit Serial AT command mode
PC	NetWork	M2M device	Serial device		^
Transparent Mode p	parameters			+HTPURL:/1.php[3F]	
Socket C				AT+HTPSV?	
Enable Socket D				AT+HTPSV? +HTPSV:test.cn,80 AT+HTPHD?	
Enable Heartbeat Package				AT+HTPHD? +HTPHD:Connection: close[0D][0A] AT+HTPTO?	
Z Enable				АТ+НТРТО? +НТРТО:10	
Identity Package	Reg Package Send Type	Send register data when \sim]	AT+HTPFLT?	
	Device id & code 1	2345678001122334455	0000test	AT+HTPFLT? +HTPFLT:OFF	
	No data auto restart time(s) 1	800		Operation complete GW-R4513	
Show Source	Socket			×	×
Modem Parameters	5			Router params	
Serial	Serial BaudRate 11520 Parity/Data/Stop NONE	(~ ~ 8 ~	1 ~		激活 Windo
More	kage Time Interval(ms) 10	Package Length(Bytes	5) 1000	Send via Serial Port 👻	转到。设置们以激励

Figure94 setting software

5. AT Commands

Table 16 AT commands

NO.	Command	Function	
		Version	
1	VER	Query version information	
2	MAC	Query the MAC	
3	ICCID	Query ICCID code	
4	IMEI	Query IMEI code	
4G			
5	AT+SYSINFO	Query the net info of device	
6	AT+APN	APN address	
7	AT+CSQ	Signal quality	
8	AT+TRAFFIC	Query traffic information	
9	AT+NETMODE	Query current network mode	
		System	
10	AT+UPTIME	Query running time	



ве но	illesi, Du desi !	GW-R4513 software manual	Technical Support: h.usriot.co
11	AT+WWAN	Query the IP of device	
12	AT+LANN	Query/set the LAN of IP	
13	AT+WEBU	Query/set the webpage account and password	
14	AT+PLANG	Query/set the default language	
15	AT+CLEAR	Recover to factory setting	
16	AT+Z	Restart	
17	AT+DHCPEN	Open/close DHCP Server	
		Remote monitor and upgrade	
18	AT+UPDATE	Query/set parameter of remote upgrade	
19	AT+MONITOR	Query/set parameter of remote monitor	
20	AT+HEARTPKT	Query/set parameter of remote heartbeat	
		System shell command	
21	AT+LINUXCMP	Execute system shell command	
		Serial command	
22	UART	Query/set parameter of serial port	
23	UARTFT	Query/set serial port packing interval	
24	UARTFL	Query/set the package length of serial port	
		Net command	
25	SOCKA	Query / setup socket A parameter	
26	SOCKB	Query / setup socket B parameter	
27	SOCKC	Query / setup socket C parameter	
28	SOCKD	Query / setup socket D parameter	
29	SOCKAEN	Query / setup whether to enable socket A	
30	SOCKBEN	Query / setup whether to enable socket B	
31	SOCKCEN	Query / setup whether to enable socket C	
32	SOCKDEN	Query / setup whether to enable socket D	
33	SOCKALK	Query socket A connection state	
34	SOCKBLK	Query socket B connection state	
35	SOCKCLK	Query socket C connection state	
36	SOCKDLK	Query socket D connection state	
37	SOCKIND	Query / setting enable or unable the source of c	lata
		Register command	
38	REGEN	Query / set enable registration package	
39	REGTP	Query / set register package content type	
40	REGDT	Query / set custom registration information	
41	REGSND	Query / set register packet sending mode	
42	CLOUD	Query/set the parameter of USR-Cloud	
		Heartbeat command	
43	HEARTEN	Query / settings enable heartbeat package	
44	HEARTDT	Query / settings heartbeat data	
45	HEARTTP	Query / settings heartbeat packet delivery mode	
46	HEARTTM	Query / settings heartbeat packet interval	



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		HTTPD command	
47	НТРТР	Query / setup HTTP operate mode	
48	HTPURL	Query/setup URL	
49	HTPSV	Query/setup remote IP and port	
50	HTPHD	Query/setup head info of HTTP protocol	
51	НТРТО	Query/setup the overtime time	
52	HTPFLT	Query/setup enable or unable filter head	

5.1. AT+VER

Function: query the firmware version

Query: AT+VER<CR>

<CR><LF>+VER:<ver><CR><LF>

e.g.

send: AT+VER return:+VER:V1.0.9

5.2. AT+MAC

Function: query MAC Query: AT+MAC<CR> <CR><LF>+MAC=<mac><CR><LF>

e.g.

send: AT+MAC return:+MAC:D8B04CD01234

5.3. AT+ICCID

Function: query the ICCID code Query: AT+ICCID{CR} {CR}{LF}+ICCID:code{CR}{LF}{CR}{LF} e.g.

send: AT+ICCID return:+ICCID:898600161515AA709917

5.4. AT+IMEI

```
Function: query the IMEI code
Query :
AT+IMEI{CR} or AT+IMEI?{CR}
{CR}{LF}+IMEI:code{CR}{LF}{CR}{LF}OK{CR}{LF}
```



e.g.

send: AT+IMEI

return:+IMEI:868323023238378

5.5. AT+SYSINFO

Function: query the net info

Query

AT+SYSINFO{CR}

{CR}{LF}+ SYSINFO:operator,mode {CR}{LF}{CR}{LF}

e.g.,

send: AT+SYSINFO return:+SYSINFO: CHINA-MOBILE,4G mode

5.6. AT+APN

Function: query/set APN code

Query

 $\mathsf{AT}\mathsf{+}\mathsf{APN}\{\mathsf{CR}\}$

Set

```
AT+APN=code,user_name,password{CR}
```

{CR}{LF}OK{CR}{LF}

e.g.

send: AT+APN return:+APN:3gnet

5.7.**AT+CSQ**

```
Function: query the signal intensity
AT+CSQ{CR}
{CR}{LF}+CSQ: rssi<CR><LF>
e.g.:
```

send: AT+CSQ return:+CSQ:31

5.8. AT+NETMODE

Function: query the net mode

Query:

AT+ NETMODE {CR}or AT+ NETMODE?{CR} {CR}{LF}+ NETMODE:mode{CR}{LF}{CR}{LF}OK{CR}{LF}



5.9. AT+TRAFFIC

Function: query traffic information

AT+TRAFFIC<CR>

<CR><LF>+TRAFFIC: < dev_down, dev_up, pro_time, at_time>, <CR><LF>

e.g.:

send: AT+TRAFFIC return:+TRAFFIC: 111000000B, 2000000B,1486379553,1486380161

5.10. **AT+UPTIME**

Function: query the running time

AT+ UPTIME<CR>

<CR><LF>+UPTIME:<seconds,time><CR><LF>

e.g.:

send: AT+UPTIME return:+UPTIME: 2096,34

5.11. AT+WANN

Function: query IP of the WAN (DHCP/STATIC)

AT+WANN<CR>

<CR><LF>+WANN=<mode,address,mask,gateway><CR><LF>

e.g.:

send: AT+WWAN return:+WANN:DHCP,10.1.179.202,255.255.255.252,10.1.179.201

5.12. AT+LANN

Function: query/set up LAN gateway, mask.

AT+LANN<CR>

<CR><LF>+LANN:ip,netmask<CR><LF>

e.g.:

send: AT+LANN return:+LANN:192.168.1.1,255.255.255.0

set:

AT+LANN=ip,netmask<CR> <CR><LF>+LANN:OK<CR><LF>

e.g.:

send: AT+LANN=192.168.2.1,255.255.255.0 return:+LANN:OK



5.13. AT+WEBU

Function: query/set webpage username and password Query:

AT+RELD<CR>

<CR><LF>+ WEBU:username,passwd<CR><LF>

e.g.: send: AT+ WEBU

return:+ WEBU:OK

Set:

AT+ WEBU =username,passwd<CR> <CR><LF>+ WEBU:ok<CR><LF>

5.14. **AT+PLANG**

Function: set the default language AT+ PLANG = LANGUAGE <CR> <CR><LF>+ PLANG:ENGLISH<CR><LF>

e.g.:

send: AT+ PLANG =EN return:+ PLANG: ok

5.15. **AT+CLEAR**

Function: recover the default setting AT+CLEAR<CR> <CR><LF>+ CLEAR:ok<CR><LF> e.g.:

> send: AT+ CLEAR return:+ CLEAR:OK

5.16. **AT+Z**

Function: restart AT+Z<CR> <CR><LF>+REBOOT:OK<CR><LF> e.g.: send: AT+Z=0

return:+ Z:OK

5.17. **AT+DHCPEN**

Function: enable/unable DHCP server



AT+DHCPEN=SWITCH<CR>

<CR><LF>+ DHCPEN:ok<CR><LF>

```
e.g.:
```

send: AT+ DHCPEN=ON return:+ DHCPEN:ON

5.18. **AT+UPDATE**

Function: set/query remote upgrade parameter Query: AT+ UPDATE <CR> <CR><LF>+ HTBT:status,ip,point,interval<CR><LF>

e.g.:

send:AT+ UPDATE

return:+ UPDATE: on, 192.168.1.110,3001,20

Set:

AT+ UPDATE = status, ip, point, interval <CR>

<CR><LF>+ UPDATE:OK<CR><LF>

e.g.:

```
send: AT+ UPDATE = on, 192.168.1.110,3001,20
return:+ UPDATE:OK
```

5.19. AT+MONITOR

Function: set/query remote monitor parameter

Query:

AT+ MONITOR<CR>

<CR><LF>+ HTBT:status,ip,ip,point,interval<CR><LF>

e.g.:

send:AT+ MONITOR

return:+ MONITOR: on, 192.168.1.110,3001,20

Set:

AT+ MONITOR =status,ip,ip,point,interval<CR> <CR><LF>+ MONITOR:OK<CR><LF>

e.g.:

send:AT+ MONITOR = on, 192.168.1.110,3001,20
return:+ MONITOR:OK

5.20. **AT+HEARTPKT**

Function: set/query remote monitor heartbeat parameter Query

AT+ HEARTPKT<CR>



<CR><LF >+ HEARTPKT:interval,data<CR><LF>

e.g.:

send: AT+ HEARTPKT

return:+ HEARTPKT: 20, heartpkt

Set:

AT+ HEARTPKT =interval,data<CR>

<CR><LF>+ HEARTPKT:OK<CR><LF>

e.g.:

send: AT+ HEARTPKT =20, heartpkt
return:+ HEARTPKT:OK

5.21. AT+ LINUXCMP

CMP : linux command

Function: execute the Linux command and return the execution information.

AT+ LINUXCMP=cmp<CR>

<CR><LF>+ LINUXCMP: result<CR><LF>

e.g.:

send: AT+ LINUXCMP=pwd return:+ LINUXCMP: /bin

5.22. AT+UART

Function: query/set serial port parameter

AT+UART{CR}or AT+UART?{CR}

{CR}{LF}+UART:baud,data bit,stop bit,parity {CR}{LF}{CR}{LF}OK{CR}{LF}

Set:

AT+UART=baud,data bit,stop bit,parity {CR} {CR}{LF}OK{CR}{LF} e.g.: AT+UART=115200,8,1,NONE

5.23. AT+UARTFT

```
Function: query/set the serial port package time
AT+UARTFT{CR}or AT+UARTFT?{CR}
```

{CR}{LF}+UARTFT:time{CR}{LF}{CR}{LF}OK{CR}{LF}

Set:

```
AT+UARTFT=time{CR}
{CR}{LF}OK{CR}{LF}
e.g.: AT+UARTFT=10
```



5.24. AT+UARTFL

```
Function: query/set the serial port package length
AT+UARTFL{CR}or AT+UARTFL?{CR}
{CR}{LF}+UARTFL:length{CR}{LF}{CR}{LF}OK{CR}{LF}
```

Set:

AT+UARTFL=length{CR} {CR}{LF}OK{CR}{LF} e.g.: AT+ UARTFL =1000

5.25. AT+SOCKA

Function: query/set socket A parameter

- Query
 AT+SOCKA{CR}or AT+SOCKA?{CR}
 {CR}{LF}+SOCKA:protocol,address,port{CR}{LF}{CR}{LF}OK{CR}{LF}
- ♦ Set

AT+SOCKA=protocol,address,port{CR}

{CR}{LF}OK{CR}{LF}

e.g.: AT+SOCKA=TCPC,test.usr.cn,2317

5.26. AT+SOCKB

Function: query/set socket B parameter

- Query parameter:
 AT+SOCKB{CR}or AT+SOCKB?{CR}
 {CR}{LF}+SOCKB:protocol,address,port{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set:
 AT+SOCKB=protocol,address,port{CR}
 {CR}{LF}OK{CR}{LF}

e.g.: AT+SOCKB=TCPC,test.usr.cn,2317

5.27. AT+SOCKC

Function: query/set socket C parameter

- Query : AT+ SOCKC {CR}or AT+ SOCKC?{CR} {CR}{LF}+ SOCKC:protocol,address,port{CR}{LF}{CR}{LF}OK{CR}{LF}
 - Set:
 AT+ SOCKC =protocol,address,port{CR}
 {CR}{LF}OK{CR}{LF}

```
e.g.: AT+ SOCKC =TCPC,test.usr.cn,2317
```



5.28. AT+SOCKD

Function: query/set socket D parameter

- Query :
 AT+ SOCKD {CR} or AT+ SOCKD?{CR}
 (CD)(LE) = SOCKD: protocol address part(CD)(LE)(CD)(LE
 - {CR}{LF}+ SOCKD:protocol,address,port{CR}{LF}{CR}{LF}OK{CR}{LF}
 - Set: AT+ SOCKD =protocol,address,port{CR} {CR}{LF}OK{CR}{LF}
- e.g.: AT+ SOCKD =TCPC,test.usr.cn,2317

5.29. AT+SOCKAEN

Function: query/set enable socket A or not

- Query:
 AT+SOCKAEN{CR}or AT+SOCKAEN?{CR}
 {CR}{LF}+SOCKAEN:status{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set: AT+SOCKAEN=status{CR} {CR}{LF}OK{CR}{LF}

5.30. AT+SOCKBEN

Function: query/set enable socket B or not

- Query : AT+SOCKBEN{CR}or AT+SOCKBEN?{CR} {CR}{LF}+SOCKBEN:status{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set:
 AT+SOCKBEN=status{CR}
 {CR}{LF}OK{CR}{LF}

5.31. AT+SOCKCEN

Function: query/set enable socket C or not

- Query :
 AT+ SOCKCEN {CR}or AT+ SOCKCEN?{CR}
 {CR}{LF}+ SOCKCEN:status{CR}{LF}CR}LF}OK{CR}{LF}
- Set: AT+ SOCKCEN =status{CR} {CR}{LF}OK{CR}{LF}



5.32. AT+SOCKDEN

Function: query/set enable socket D or not

- Query :
 AT+ SOCKDEN {CR}or AT+ SOCKDEN?{CR}
 {CR}{LF}+ SOCKDEN:status{CR}{LF}CR}{LF}OK{CR}{LF}
- Set :
 AT+ SOCKDEN =status{CR}
 {CR}{LF}OK{CR}{LF}

5.33. AT+SOCKALK

Function: query socket A establish or not

 Query : AT+SOCKALK{CR}or AT+SOCKALK?{CR} {CR}{LF}+SOCKALK:status{CR}{LF}{CR}{LF}OK{CR}{LF}

5.34. AT+SOCKBLK

Function: query socket B establish or not

 Query : AT+SOCKBLK{CR}or AT+SOCKBLK?{CR} {CR}{LF}+SOCKBLK:status{CR}{LF}{CR}{LF}OK{CR}{LF}

5.35. AT+SOCKCLK

Function: query socket C establish or not

Query :
 AT+ SOCKCLK {CR}or AT+ SOCKCLK?{CR}
 {CR}{LF}+ SOCKCLK:status{CR}{LF}{CR}{LF}OK{CR}{LF}

5.36. AT+SOCKDLK

Function: query socket D establish or not

Query :
 AT+ SOCKDLK {CR}or AT+ SOCKDLK?{CR}
 {CR}{LF}+ SOCKDLK:status{CR}{LF}{CR}{LF}

5.37. AT+SOCKIND

Function: query/set enable the data source of socket or not

- Query :
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AT+SOCKIND{CR}or AT+SOCKIND?{CR} {CR}{LF}+SOCKIND:status{CR}{LF}{CR}{LF}OK{CR}{LF}

 Set : AT+SOCKIND=status{CR} {CR}{LF}OK{CR}{LF}

5.38. AT+REGEN

Function: query/set enable the register package or not

- Query :
 AT+REGEN{CR}or AT+REGEN?{CR}
 {CR}{LF}+REGEN:status{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set : AT+REGEN=status{CR} {CR}LF}OK{CR}LF}

5.39. AT+REGTP

Function: query/set the type of register

- Query : AT+REGTP{CR}or AT+REGTP?{CR} {CR}{LF}+REGTP:type{CR}{LF}CR}LF}OK{CR}{LF}
- Set :
 AT+REGTP=type{CR}
 {CR}{LF}OK{CR}{LF}
- e.g.: AT+ REGTP = ICCID

5.40. AT+REGDT

Function: query/set custom register data

- Query : AT+REGDT{CR}or AT+REGDT?{CR} {CR}{LF}+REGDT:data{CR}{LF}CR}{LF}OK{CR}{LF}
- Set : AT+REGDT=data{CR} {CR}{LF}OK{CR}{LF}
 e.g.: AT+ REGDT = 123456789

5.41. AT+REGSND

Function: query/set the register sending type

- Query : AT+REGSND{CR}or AT+REGSND?{CR}
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{CR}{LF}+REGSND:type{CR}{LF}{CR}{LF}OK{CR}{LF}

♦ Set :

AT+REGSND=type{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ REGSND = DATA

5.42. AT+CLOUD

Function: query/set the USR-Cloud register parameter

- Query : AT+CLOUD{CR}or AT+CLOUD?{CR} {CR}{LF}+CLOUD:id,password{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set : AT+CLOUD=id,password{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ CLOUD = 12345678901234567890,12345678

5.43. AT+HEARTEN

Function: query/set enable heartbeat or not

- Query : AT+HEARTEN{CR}or AT+HEARTEN?{CR} {CR}{LF}+HEARTEN:status{CR}{LF}{CR}{LF}OK{CR}{LF}
- Set : AT+HEARTEN=status{CR} {CR}{LF}OK{CR}{LF}

5.44. AT+HEARTDT

Function: query/set heartbeat data

 Query : AT+HEARTDT{CR}or AT+HEARTDT?{CR} {CR}{LF}+HEARTDT:data{CR}{LF}{CR}{LF}OK{CR}{LF}

 Set : AT+HEARTDT=data{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ HEARTDT = 123456789

5.45. AT+HEARTSND

Function: query/set the heartbeat sending type

- Query :
 AT+HEARTSND{CR}or AT+HEARTSND?{CR}
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{CR}{LF}+HEARTSND:type{CR}{LF}CR}LF}OK{CR}{LF}

♦ Set :

AT+HEARTSND=type{CR} {CR}{LF}OK{CR}{LF}

```
e.g.: AT+ HEARTSND = COM
```

5.46. AT+HEARTTM

Function: query/set the heartbeat sending time

```
    Query :
AT+HEARTTM{CR}or AT+HEARTTM?{CR}
{CR}{LF}+HEARTTM:time{CR}{LF}{CR}{LF}OK{CR}{LF}
```

Set : AT+HEARTTM=time{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ HEARTTM = 30

5.47. AT+HTPTP

Function: query/set HTTP request type

- Query : AT+HTPTP{CR}or AT+HTPTP?{CR} {CR}{LF}+HTPTP:type{CR}{LF}CR}{LF}OK{CR}{LF}
- Set :
 AT+HTPTP=type{CR}
 {CR}{LF}OK{CR}{LF}
- e.g.: AT+ HTPTP = POST

5.48. AT+HTPURL

Function: query/set the URL of HTTP

- Query :
 AT+HTPURL{CR}or AT+HTPURL?{CR}
 {CR}{LF}+HTPURL:URL{CR}{LF}CR}LF}OK{CR}{LF}
- ♦ Set :

AT+HTPURL=URL{CR}

{CR}{LF}OK{CR}{LF}

e.g.: AT+ HTPURL = /1.php[3F]

5.49. AT+HTPSV

Function: query/set the request parameter of HTTP

- Query :
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AT+HTPSV{CR}or AT+HTPSV?{CR}

 Set : AT+HTPSV=address,port{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ HTPSV = test.usr.cn,80

5.50. AT+HTPHD

Function: query/set the head info of HTTP

- Query :
 AT+HTPHD{CR}or AT+HTPHD?{CR}
 {CR}{LF}+HTPHD:head{CR}{LF}CR}{LF}OK{CR}{LF}
- Set :
 AT+HTPHD=head{CR}
 {CR}{LF}OK{CR}{LF}

e.g.: AT+ HTPHD = Connection: close[0D][0A]

5.51. AT+HTPTO

Function: query/set the request time of HTTP

- Query :
 AT+HTPTO{CR}or AT+HTPTO?{CR}
 {CR}{LF}+HTPTO:time{CR}{LF}CR}LF}OK{CR}{LF}
- Set : AT+HTPTO=time{CR} {CR}{LF}OK{CR}{LF}

e.g.: AT+ HTPTO = 10

5.52. AT+HTPFLT

Function: query/set filtering the header information of HTTP request or not

```
    Query :
    AT+HTPFLT{CR}or AT+HTPFLT?{CR}
    {CR}{LF}+HTPFLT:status{CR}{LF}{CR}{LF}OK{CR}{LF}
```

Set :
 AT+HTPFLT=status{CR}
 {CR}{LF}OK{CR}{LF}



6. Contact Us

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8. Update History

Edition	Describe
V1.0.1	2019-4 establish