

Industrial LTE Router

USR-G806s-G

User Manual



V2.0

Be Honest & Do Best

Your Trustworthy Smart Industrial IoT Partner

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1. Introduction

USR-G806s is a high-performance industrial 4G wireless router with serial port, GPS and powerful DTU function. Using public wireless network, it provides users with an integrated solution of industrial 4G router and DTU. This product adopts high-performance embedded CPU and the operating frequency is up to 580MHz. And it adopts 4G modem with Qualcomm solution which can provide stable and reliable cellular network and support the mainstream band all over the world. Based on a variety of hardware interfaces and powerful software functions, users can quickly set up their own application network. It has been widely used in the M2M industry of the Internet of Things, providing reliable data transmission network for smart grid, personal medical care, smart home, self-service terminal, industrial automation, environmental protection agriculture, municipal services and other fields.

1.1. Key Features

Stable And Reliable

- •Metal shell, IP30 protection.Ethernet ports support 1.5KV isolation transformer protection.
- •Wide operating temperature.Wide voltage input, reverse polarity protection.
- •ESD,Surge,EFT protection.
- •Embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.

Uninterrupted network access

- •Supports 2G/3G/4G network all over the world ,supports APN/VPDN sim card.
- •Fail-over between 4G and WAN, ensures automatic switch to alternative backup connection, effectively ensuring uninterrupted data transmission.
- •VPN tunnel detection: maintains stable connection of the VPN tunnel, ensuring continuous transmission.
- •Multi-layer link detection mechanism, automatic redial and recovery.

Rich functions

- •Supports PUSR cloud platform to facilitate remote monitoring and central management of large-scale device networks.
- •Supports GPS positioning, can be combined with PUSR cloud to achieve running track monitoring, and also support reporting positioning data to private server in RCM or GGA format.
- •Supports remote monitoring, upgrade and parameter configuration, remote access to the built-in web pages.



- •Supports email alarm,SMS alarm,abnormal alarm push in time.
- •Dual Ethernet ports, WAN/LAN.
- •Multiple VPN protocols.
- •Wall-mounting and DIN-rail mounting options available, easy to install.
- •Supports IPsec VPN, PPTP,L2TP, OPENVPN,GRE etc., ensuring secure data transmission.
- •Supports firewall functions including NAT, access control, DDoS defense, IP-MAC binding, etc.,
 - protecting the network against external attacks.
- •Supports WLAN, scaling more devices access.
- •Supports APN automatic inspection ,mode switch ,SIM information display, supports private sim card.
- •Supports DDNS,PPPOE,DHCP,Static IP.
- •Allows multiple network management methods including SSH, WEB, TELNET and a network management platform.
- •Provides wireless data communications between field serial devices and the central control system.

1.2. Specification

USR-G806s-G Specification			
Item	Parameters	Value	
	Power Input	9~36V DC	
	Working Current	Average 270mA/12V	
Power Supply		DC Power Jack Barrel Type Female 5.5*2.1mm Round	
	Power Connector	socket or 2 PIN 5.08mm industrial terminal	
		block, reverse polarity protection	
		TDD-LTE: B34/38/39/40/41	
	Frequency	FDD-LTE:B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/66	
		WCDMA: B1/2/4/5/6/8/19	
		GPRS/EDGE: B2/3/5/8	
	Max. Data Rates	TDD-LTE: 130 Mbps (DL)/50 Mbps (UL)	
Cellular Interface		FDD-LTE: 150 Mbps (DL)/50 Mbps (UL)	
		WCDMA: 384 kbps (DL)/384 kbps(UL)	
		GPRS: 107 kbps (DL)/85.6 kbps (UL)	
		EDGE: 296 kbps (DL)/236.8 kbps (UL)	
	Antenna	1 x SMA-K	
	SIM card	1 x 2FF SIM	
Ethornot Ports	WAN	1 x WAN port (can be configured to LAN) $10/100$	
Ethernet Ports	WAIN	Mbps, supports auto MDI/MDIX,1.5KV network	

Table 1. Specification



		isolation transformer protection
		1 x LAN port 10/100 Mbps supports auto
	LAN	MDI/MDIX.1.5KV network isolation transformer
		protection
	Standards & Frequency	IEEE 802.11b/g/n,2.4GHz, AP mode
		IEEE 802.11b/g, maximum 54Mbps.IEEE 802.11n, maximum
	Data speed	150Mbps
WiFi	Antenna	1 x SMA-K
		80 meters by line of sight.Actual transmission
	Transmission distance	distance depends on environment of the site.
	Antenna Interface	1 * SMA-K
	Antenna Type	Active antenna, frequency range 1575.42Mhz
GPS Interface		The theoretical value for positioning accuracy is
	Accuracy	2.5 meters, this accuracy is influenced by factors
		such as the number of available satellites.
	RS485	3 PIN 3.81mm industrial terminal block.
	Baud rate	1200/2400/4800/9600/19200/38400/57600/115200/230400
Serial Interface	Data bits	8
	Stop bits	1, 2
	Parity	NONE, ODD, EVEN
	Reload	Reset to factory settings
Other Interface	TBD	Debug interface (TTL Level)
	Indicators	PWR, WAN. LAN, WLAN, GNSS, Signal, 2G, 3G, 4G
	Housing	Metal shell, IP30
	Dimensions	112.0*84.0*25.0 mm(L*W*H)
	Installation method	Panel mounting, DIN-Rail mounting
Physical		IEC 61000-4-2(ESD): Level 3
Characteristics	EMC	IEC 61000-4-4(EFT): Level 3
		IEC 61000-4-5(Surge): Level 3
	Operating temperature	$-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$
	Storage temperature	-40°C∼+125°C
	Operating humidity	5%~95%RH (non-condensing)
	WAN protocol	PPP, PPPoE, DHCP client
Network Connection	LAN protocol	ARP, DHCP server, NAT
	4G network access	Auto APN/VPDN, private network
		Access authentication: CHAP/PAP
	WLAN security	Open system, WPA/WPA2 PSK
		TKIP/AES encryption
IP routing		Static routing



	Network diagnosis	Ping, route trace, DNS
	Work mode	NET, HTTPD
Serial modem	Sockets	4 sockets, 4 centers , TCPS(SOCKA)/TCPC/UDPS/UDPC
	Modbus RTU toTCP	Support
	Configuration	Web
	Remote management	Telnet, SSH, AT command, SNMP
Device management		Remote monitoring, remote upgrade, alarming, base
	PUSR platform	station location, remote access to web pages of the
		router
	Failover backup	Failover between 4G and WAN, ensures automatic
		switch to alternative backup connection
Soourity	Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/MAC
Security		address), Port Mapping, Access Control
	VPN	Supports PPTP, L2TP, GRE, IPSEC VPN (IKEv1),
		OPENVPN protocols
DDNS		Remote access the device through domain name
C	Alarm	Email, SMS
Service	Othors	NTP client
	011101 5	Timing task

Power consumption:

USR-G806s works at full speed, with 1 WIFI station access, 1 LAN port access, and 4G access to the external network, data transmission speed is 10KByte/s.

Table 2.	Power	consumption
----------	-------	-------------

Operating mode	Power supply	Average current (mA)	Maximum current (mA)
LAN+WAN, full speed (4G +WLAN)	DC12V	151	385
LAN, full speed (4G+WLAN)	DC12V	270	400
LAN+WAN, full speed (WLAN)	DC12V	130	236
WAN, full speed (WLAN)	DC12V	128	295

When G806s is powered by 12V and working at full speed:

The average power consumption is 3.24W and the maximum is 4.8W. The average current is 270mA and the maximum is 400mA.



1.3. Interface

No.	Item	Description
1	DC interface	DC:9~36V, standard 5.5*2.1mm round socket
2	DC terminal	DC:9~36V, green terminal block, 5.08mm-2
3	WAN/LAN	1*10/100M, MDI/MDIX, 1.5KV electromagnetic isolation protection
4	LAN	1*10/100M, MDI/MDIX, 1.5KV electromagnetic isolation protection
5	TBD	1
6	RS485	1*standard 3.81mm*3 pin (A,B,G) interface
7	Indicator	Power, WIFI, 2/3/4G, signal strength, WAN, LAN
8	SIM slot	3V/1.8V SIM card
9	Reload	Press and hold for more than 5s to reset the device
10	WIFI antenna	2.4G stick antenna
11	4G antenna	Full frequency stick antenna
12	Ground screw	Recommend to connect the ground screw on the side to the ground cable.
13	GPS antenna	GPS antenna interface

Table 3. Interface introduction



Grounding screw installation:

- > Unscrew the ground screw $-\rightarrow$ insert the ground ring of the ground cable into the ground screw $-\rightarrow$ tighten the ground screw $-\rightarrow$ connect the ground cable.
- In order to improve the anti-interference ability of the router, the ground cable should be connected to the ground screw of the router according to the specific environment during installation.

1.4. Indicator

Table 4. Indicator introduction

Item	Description	
₽ TPUSR [®]	- 9 -	pusr.com

PWR	Power indicator, always on after powered on
WAN	WAN indicator will be on after connecting Ethernet cable, blink during data transmission
LAN	LAN indicator will be on after connecting Ethernet cable, blink during data transmission
WLAN	WLAN indicator will be on during normal operation
2G Indicator	2G indicator will be on when connects to 2G network
3G Indicator	3G indicator will be on when connects to 3G network
Signal strength (1-2)	The more signal strength indicators are on, the stronger the signal is.
GNSS	When the GNSS is configured as "off," it is in a powered-off state.
	When the GNSS is configured as "non-off," the GPS is searching for satellites, indicated by the light blinking every 100ms.
	When the GNSS is configured as "non-off," the GPS has completed satellite acquisition, indicated by a steady light.
	When the GNSS is sending location data, the light blinks once every 200ms.



1.5. Dimensions



Figure 1. Dimension

- > Metal housing, supports panel and DIN-rail mounting.
- Dimensions: 112*84.0*26.0mm (Power terminals, RS485 terminals, antennas, and antenna mounts are excluded)



2. Get Started

2.1. Web Interface

Connect PC to the LAN port of USR-G806s via a Ethernet cable, or directly connect the PC to the WiFi of the G806s, then log into the webpage. Default parameters are as below:

Parameters	Default
SSID	USR-G806s-XXXX
LAN IP address	192.168.1.1
Username	root
Password	root
WiFi password	www.pusr.com

Table 5. Default parameters

Enter 192.168.1.1 in the browser to log into the webpage of USR-G806s, username and password are both "root", then click "Login".

Communication Expert of Industrial IOT		Be Honest, Do Best!
	Authorization Required Please enter your username and password.	
	Username: root Password:	2 A

Figure 2. Login page



USR IOT Communication Expert of Indust	ial IOT	В	e Honest, Do Best! Autorefreshow
USR-G806s	Status		
✓ Status	System		
Overview	Hostname	USR-G806s	
Services	Firmware Version	V1.0.08-EN	
> Network	SN		
VPN	IMEI	869387060028082	
) UTU	Local Time	Tue Mar 26 22:43:51 2024	
> WAN/LAN Port	Uptime	9d 2h 26m 7s	
> Firewall	Load Average	1.42, 1.32, 1.31	
> System			
Logout	Memory		
	Total Available	90608 kB / 126444 kB (71%)	
	Free	60144 kB / 126444 kB (47%)	
	Cached	23412 kB / 126444 kB (18%)	
	Buffered	7052 kB / 126444 kB (5%)	
	Network		
	IPv4 WAN Status	∑ype: dhcp ethi Addres: 10.133.48.144 Netmask: 25255.255.224 Gateway: 10.133.48.145 DNS 1:61.156.60.66 DNS 1:61.156.60.66 DNS 1:61.156.60.66	

Figure 3. Overview page

2.2. Functional Diagram





Network card	No.	Interface
LAN	br-lan	LAN
WIFIAP	ra0	LAN
Wired WAN	eth0.2	WAN_WIRED
4G	eth1	WAN_4G

Following is the application diagram:



Explanation:

- > Users' devices or computers can access the internet through the wired LAN port or the Wi-Fi interface of the USR-G806s.
- If using a regular mobile SIM card, no additional settings are needed; simply power on the device to access the internet.

2.3. Host name

The host name defaults to USR-G806s.



USK-G800S
Status
Services
> Network
> VPN
> DTU
> WAN/LAN Port
> Firewall
∽ System
System
Administration
Reboot Scheduler
Backup/Upgrade
Reboot
Logout

Figure 4. Host name setting page

2.4. NTP Settings

NTP client function is default to be enabled, you can set different NTP server address.

USR-G806s
Chature
- Status
> Services
Network
> VPN
DTU
> WAN/LAN Port
> Firewall
∽ System
System
Administration
Reboot Scheduler
Backup/Upgrade
Reboot
Logout
Logodi

Figure 5. NTP settings

2.5. Username/Password Settings

Username and password are default to "root" which used to log into the webpage of the device. Password can be changed but the username cannot be changed.







2.6. Backup Parameters

Download configuration file: Click **Export configuration file**, we can download the current parameters to a zip file, like **backup-USR-G806s-2022-08-04.tar.gz**, then save it in the computer.

USR-G806s	Backup/Upgrade
> Status > Services	Export/Import Export or import the current system configuration file
> Network > VPN	Download Configuration
> DTU > WAN/LAN Port	Restore to Default:
> Firewall	Import configuration file from backup. Restore Backup: Please select file I Browser I Upload
System	
Administration	Flash new firmware image
Backup/Upgrade	Upload a proper image here to replace the running firmware. Check "Keep settings" to retain the current configuration.
Reboot	Firmware mark: 28A
Logout	Firmware Image: Please select file

Figure 7. Download configuration

Upload configuration file: Upload the configuration file to the router, then the parameters will be saved and take effect.



	USR-G806s
	> Status
	> Services
	Network
	> VPN
	> DTU
	WAN/LAN Port
	> Firewall
ì	∽ System
	System
	Administration
	Reboot Scheduler
	Backup/Upgrade
	Reboot
	Logout

Figure 8. Upload configuration

2.7. Reset

2.7.1. Hardware Reset

There is a **Reload** button in the device. After power on G806s device, press and hold the **Reload** button for more than 5s then release it, the device will restore to factory and restart automatically. When the device restarts, all the indicators will flash once and then turn off (the power indicator is still on).

2.7.2. Software Reset

We can also reset the device to factory settings via its web page.

USR-G806s	
	Backup/Upgrade
> Status	Export/Import
> Services	Export or import the current system configuration file
> Network	Download Configuration file
> VPN > DTU	Restore to Default: 🔘 Restore
> WAN/LAN Port	Import configuration file from backup.
> Firewall	Restore Backup: Please select file
System	
Administration	Flash new firmware image
Reboot Scheduler	Upload a proper image here to replace the running firmware. Check "Keep settings" to retain the current configuration.
Backup/Upgrade	Keep Settings:
Reboot	Firmware mark: 28A
Logout	Firmware Image: Please select file

Figure 9. Reset to factory settings

2.8. Firmware Upgrade

USR-G806s supports upgrading via webpage.



	USR-G806s
	Status
>	Services
	Network
	VPN
	DTU
	WAN/LAN Port
	Firewall
~	 System
	System
	Administration
	Reboot Scheduler
	Backup/Upgrade
	Reboot
	Logout



Note:

- > The firmware upgrading will last 3-4 minutes , please log into the page again after 4 minutes.
- > You can choose whether to enable **Keep Settings**.
- > During the upgrading, please do not power off the device or disconnect the Ethernet cable.

2.9. Reboot

Click **Reboot** to restart the device, it will last about 1 minute.

LISP-G806c
0511 00005
 Statue
Convisos
Services
DTU
WAN/LAN Port
Firewall
< System
System
Administration
Reboot Scheduler
Backup/Upgrade
Reboot
Logout
Logour



2.10. Reboot Scheduler

Users can restart the router at any time every day, every week and every month, and clear the running cache regularly to improve the running stability.



USR-G806s
Status
> Services
> Network
> VPN
> WAN/LAN Port
> Firewall
✓ System
Administration
Reboot Scheduler
Backup/Upgrade
Logout

Figure 12. Reboot schedule

2.11. Log

2.11.1. Remote Log

- Remote IP address: Remote UDP server IP/domain name, this function is disabled when the IP is 0.0.0.0.
- Remote port: Remote UDP server port.

1158-080-90			
System			
Here you can configure th	e basic aspects of your device like	its hostname or the timezone.	
Status			
Services System Properties			
Network General Settings Re	note log Local log		
> VPN			
DTU Reporte IP addres	 0.0.0.0 Wing udp protocol, keep emp 	aty or '0.0.0.0' to disable	
WAN/LAN Port	- con		
Firewall	 SSS Keep empty to disable 		
Śystem			
System			
Administration Time Synchronization			
Reboot Scheduler Enable NTP clier	t 🗹		
Backup/Upgrade	-		
Reboot Provide NTP serve			
gout NTP server candidate	ntp1.aliyun.com	×	
	time.ustc.edu.cn	*	
	0.pool.ntp.org	1	
		Covin & Annahri	
		Save & Apply	

Figure 13. Remoter log

2.11.2. Local Log

We can view and download the router logs from below interface.



	031-00005
	Status
	Services
	Network
	VPN
	DTU
	WAN/LAN Port
	Firewall
\ \	✓ System
	System
	Administration
	Reboot Scheduler
	Backup/Upgrade
	Reboot
	i coot
	Logout



3. Interface

3.1.4G Interface

USR-G806s supports one 4G/3G/2G interface to access the external network.

SR-G806s			
	Interfaces		
s	Interface Overview		
5	Network	Status	Actions
rk .	LAN	Uptime: 9d 2h 49m 38s	Second Fdit
erfaces	認定 (空空 魚) br-lan	MAC-Address: D4:AD:20:00:88:3B RX: 25.08 MB (134335 Pkts.) TX: 90.91 MB (134861 Pkts.)	
d		IPv4: 192.168.12.1/24	
k Switch	WAN_4G	Uptime: 0h 10m 2s MAC-Address: 2A:CF:A3:79:C8:CE	🖉 Connect 📓 Edit
	eth1	RX: 266.94 KB (1227 Pkts.) TX: 241.18 KB (1567 Pkts.)	
		IPv4: 10.138.159.192/25	
nes	WAN_WIRED	Uptime: 0h 0m 0s	🛿 Connect 🛛 Edit
Routes	eth0.2	RX: 0.00 B (0 Pkts.) TX: 89.75 MB (262413 Pkts.)	
ostics			



For the interface status, if the uptime is 0, means the network card is not running normally.

No.	Item	Description
1	Uptime	Time of this interface connected to the network.
2	MAC	MAC address of this interface.
3	RX/TX	Data received and sent of the this interface after connecting to the network.



4	IPv4	Indicates this interface use the IPV4 protocol.

Note: Network priority: Wired WAN>4G.

3.2. SIM Card

3.2.1. APN settings

Please set the APN parameters here if the device cannot connect to the network automatically. After setting all parameters, restart the device to take effect.

Item	Description	Default
APN	Please set the correct APN address.	Autocheck
Username	APN username	None
Password	APN password	None
Auth Method	APN authentication type: None/PAP/CHAP	None
Network Type	AUTO/2G/3G/4G	AUTO
Priority of network	Can set the priority of the network, AUTO/2G/3G/4G	AUTO
search		
PIN Enable	Enable: Fill in the pin code of the SIM card.	Disable
EHRPD Enable	Enable/Disable, enable when there is 3.5G network	Disable
LTE BANDLOCK	LTE FULL-BAND or LTE-TDD	LTE FULL-BAND

3.2.2. Ping Detection Settings

Ping detection is used to check the network status of the device, defaults to be disabled. After enable this function, the device will try to ping the set address, dial again after reaching consecutive failures times.



USR IOT Communication Expert of Indu	Be Honest, Do Best!
USR-G806s Status Services VVN VNU USR-G800S USNCard SIM Card SIM Card SIM Card SIM Card USR D4CP Hostnames Static Routes Diagnostics Firewall WMAN/LAN Port D1U System Logout	Cellular Meteoral Configuration Configure a MAN parameters, network priority, BM and PIR code, network detection and other functions of the mobile network. Configure a MAN parameters, network detection and other functions of the mobile network. Configure a MAN parameters, network detection and other functions of the mobile network. Configure a MAN parameters, network detection and other functions of the mobile network. Configure and the mobile network detection and other functions. Configure and the mobile network detection and the mobile network. Configure and the network watch priority. Mark and y Serve in 114.114.114.114.114.114.114.114.114.114
	Jinan USR IOT Technology Limited http://www.pusr.com/

Figure 16. SIM card settings

Item	Description	Default
Enable	1	/
Interval	Ping time interval, 5-86400s	10
Primary Server	Ping detection address: IP/domain name	114.114.114.114
Secondary Server	Ping detection address: IP/domain name	8.8.8.8
Max Ping Tries	Dial again after reaching consecutive failures	4
	times, 1-100	

3.2.3. Mobile Information

Users can check the detailed configuration information of the SIM card.



USR-G806s	Cellular Network Configuration		
> Status	Configure the APN parameters, network priority, SIM card PIN Configure network search priority to reduce network search ti	code, network detection and other functions of the mobile network. me.	
> VPN	Config		
✓ Network	WAN_4G Settings Ping Detection Settings Mobile	nformation	
SIM Card	IMEI:	860548047538407	
Network Switch	SIM Status:	READY	
Wifi	Modem Version:	EC25EFAR06A08M4G	
DHCP	ICCID:	89860319745312986836	
Hostnames	Phone Number:	+8618100395660	
Static Routes	CIMI:	460110320291198	
Diagnostics	APN:	ctnet,ctnet@mycdma.cn,vnet.mobi,1	
> Firewall	Attachment Status:	Attached	
WAN/LAN Port	Signal Strength:	31(-51dBm)	
> DTU	Network Type:	FDD-LTE(4G)	
> System	Network Operator:	CHN-CT	
Logout	Location Area Code:	530C	
	Cell ID:	6244083	

Description:

>Unit of the signal strength is dBm and asu. dBm=-113+2*asu.

>USR-G806s supports display via asu, asu ranges from 1 to 31, and the higher the value, the better the signal

strength.

>In general, dBm \geq -90dBm, ASU \geq 12, the signal is normal.

3.3. LAN Interface

S USR IOT				Be	н
USR-G806s	Interfaces				
Status	Interface Overview				
> Services	Network	Status	Ad	tions	
> VPN V Network Interfaces	LAN (*****) br-lan	Uptime: 0h 3m 7s MAC-Address: 9C:A5:25:C8:48:C0 RX: 0.00 8 (0 Pkts.) TX: 0.00 8 (0 Pkts.) IPv4: 192.168.1.1/24		🗑 Connect 🔝 Edit	
SIM Card Network Switch	WAN_4G	MAC-Address: CE:0C:21:B3:68:E6 RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	4	7 Connect di Edit	
Wifi DHCP Hostnames	WAN_WIRED	Uptime: 0h 3m 3s MAC-Address: 9C:A5:25:C8:48:8F RX: 216.26 KB (1504 Pkts.) TX: 160.85 KB (433 Pkts.) IPy4: 172.16.14.62/24		Connect dit	
Static Routes					
Diagnostics					
Firewall					
WAN/LAN Port					
DTU					
> System					
Logout					
		Jinan USR IOT Technology Limited htt	tp://www.pusr.com/		



USR IOT Communication Expert of Industrial IOT		Be Honest, Do Best!
USR-G806s Interfaces - LAN		
On this page you can config notation INTERFACE. VLANR (s	re the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use <u>VLAN</u> gr +th0. 1).	
> Status		-
Services Common Configuration		
General Setup		_
Interfacer Status	87 Uptimer 0h 4m 16s	
SIM Card	bolan MAC-Address: 9C:45:25:C8:48:C0 RX: 0.00 8 (0 Pits.)	
Network Switch	TX: 0.00 B (0 Pics.) I₽v4: 192.168.1.1/24	
Wifi		
DHCP Protocol	Static address 🗸	
Hostnames IPv4 address	192.168.1.1	
Static Routes IPv4 netmask	255.255.0	
Diagnostics		
> Firewall	5.5.5.5 mi 114.114.114.114	
WAN/LAN Port		
> UTO <		
> System DHCP Server		
Logout		-
Cieneral Setup		-
Ignore interface	O Disable DHCP for this interface.	
Start		
	Coversit weaked address as other from the methods address.	
Linit	150 Maximum number of leased addresses.	
Leasetime	12h	
	Expiry time of leased addresses, minimum is 2 minutes (2m).	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Descriptions:

>LAN interface defaults to the static IP address 192.168.1.1 and netmask 255.255.255.0. These parameters can

be modified.

>WiFi interface (WLAN) and wired LAN are in the same lan network.

3.3.1. DHCP

DHCP server function is default to be enabled, all the devices connect to the LAN port will get IP address automatically.

Communication Expert of Indus	tia lor		Be H	onest, Do Best!
USR-G806s	Status	Ø ^B Uptime: 0h 11m 17s br-lan NAC-Address 9CA5255(8)48)C0 RV RO 00 8 (0 Pks), TX: 00.08 (0 Pks), FW: 192.168,11/2/4		
Services VPN Network	Protocol IPv4 address	Static address V 192.168.1.1		
Interfaces SIM Card Network Switch	IPv4 netmask Use custom DNS servers	255.255.255.0 V 8.8.8.8 M 114.114.114.114		
Will DHCP Hostnames Static Routes	DHCP Server			
Diagnostics Firewall WAN/LAN Port	General Setup Ignore interface Start	Disable DHCP for this interface. Does leased address as offset from the network address.		
> System Logout	Limit Leasetime	150 Maximum number of lessed addresses. 12h p ⊆upriny time of lessed addresses, minimum is 2 minutes (2m).		
	Back to Overview	Save & Appl	y Save	
		Jinan USR IOT Technology Limited http://www.pusr.com	n/	



Descriptions:

>We can change the start address and leased time of the DHCP Client.

>DHCP addresses are default to be assigned from 192.168.1.100.

≻Default lease time is 12 hours.

3.3.2. Static IP

In Network--DHCP, we can assign a fixed IP address and hostname to a DHCP Client device. Only the specific

client can be connected and the LAN interface mode cannot be DHCP.

SR IOT mmunication Expert of Industrial IOT					Be H
ISR-G806s	DHCP/Static Lease				
Status	DHCP list information and S	itatic Lease			
Services	Active DHCP Leases				
/PN	Hostname	IPv4-Address	MAC-Address	Leasetime remaining	
etwork terfaces	There are no active leases.				
SIM Card	Static ID Table				
Network Switch	Hostname	MAC Address	1	IP Address	
Wifi					
DHCP	This section contains no val	ies yet			
Hostnames					
Static Routes	New Rule:				
Diagnostics	Hostname	MAC Addr	*55	IP.Address	
WAN/I AN Port	New rule		~	~	🛅 Add
πu					
System					
Logout			Save & Apply Save		
		Jinan USR IOT Technology	Limited http://www.pusr.com		

3.4. WAN Interface

S Communication Expert of Industrial IOT				Be Honest, D
USR-G806s	Interface			
Status	Naturals			
VON	LAN	Uptime: 0h 21m 36s	Activity	
	(25 () () () () () () () () () () () () ()	MAC-Address: 9C:A5:25:C8:48:C0	Connect dit	
	br-lan	TX: 0.00 B (0 Pkts.)		
SIM Card	WAN 4G	1794 192.108.1.1/24		
Network Switch	Ľ	RX: 0.00 B (0 Pkts.)	Connect dit	
Wife	eth1	TX: 0.00 B (0 Pkts.)		
DHCB	WAN_WIRED	MAC-Address: 9C:A5:25:C8:48:BF	Sconnect Edit	
Hostnames	eth0.2	RX: 1.32 MB (9684 Pkts.) TX: 1.05 MB (1984 Pkts.)		
Static Routes		IPv4: 172.16.14.62/24		
Diagnostics				
Firewall				
WAN/LAN Port				
> DTU				
> System				
Logout				
		Jinan USR IOT Technology Limited http://www.pus	r.com/	



Communication Expert of Indu	Be H	onest, Do Best AUTO REFRESHION 📲
USR-G806s	WAN - WAN_WIRED	
> Status	You can also use <u>MAN</u> notation INTERAC, 1,2008 (6,g.; etb.).	
> Services		
> VPN	Common Configuration	
 Vetwork 	General Setup	
Interfaces	Status 🖉 Uptime: 06 22m 24	
SIM Card	etho 2 PM - 2 Address CVA325 CPU - 2 Address	
Network Switch	TX 120 Add (2157 Piles) Tenet 377 15 (4.67 Piles)	
Wifi	PP44: 1/2.10.1402/24	
DHCP	Protocol DHCP client	
Hostnames		
Static Routes	Hostname to send when USR-GSU05 requesting DHCP	
Diagnostics		
> Firewall	Ref. to Overview	
> WAN/LAN Port		
> DTU		
> System		
Logout		
	linan USR IOT Technolony Limitedhttp://www.nusc.com/	

Descriptions:

- >1 wired WAN interface, WAN is a wide area network interface.
- >Supports DHCP Client, static address and PPPoE, defaults to DHCP Client.
- >This WAN interface can be configured to LAN.

3.5. WAN/LAN Mode Selection

In WAN/LAN Port--Select Mode, you can change the WAN port to LAN. After changing it, click Save&Apply, then

restart the device to take the parameters effect.

Communication Expert of Indu	arbailor Be Honest, Do Best	!
USR-G806s Services VPN Network Firewall VMAV/LAN Port Select Mode DTU System Logout	WAN/LAN Port setting Sating the Work Mode of Ethemes Port TyWAV/LAN@Restart to take effect! Configuration Wan/LAN W	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

3.6. WiFi Interface

USR-G806s supports WiFi-AP function, 2.4GHz WiFi network. Users can modify the WiFi parameters in below



interface.

USR IOT	oduatnal IOT	Be Ho
USR-G806s	Wireless Overview	
> Status > Services	802.11 b/g/n Wireless Controller channel: 11 (2.462 GHz) Bitrate: 150 Mbit/s	
> VPN ~ Network	SSID: USR-G805s-488F Mode: Master BSSID: 9CA525:C8488E Encryption: -	ral Settings ed Settings
Interfaces SIM Card	Associated Stations	
Network Switch Wifi	SSID MAC-Address Host Signal / Noise RX Rate / TX Rate	
DHCP Hostnames	No information available	
Static Routes Diagnostics		
Firewall WAN/LAN Port		
> DTU > System		
Logout		
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Descriptions:

>USR-G806s is an access point, other station devices can connect to its WiFi.

≻It supports up to 24 WiFi stations.

>The maximum WiFi range is 100m in open area, and within 50m in the office with obstacles.

Item	Description	Default
ESSID	Network name of the WiFi, can be modified.	USR-G806s-8899
		(8899=the last 4 bits of the
		MAC)
Mode	Access Point	АР
Hide ESSID	Enable: None of client could scan the SSID. If	Disable
	you want to connect to the router AP, must	
	enter the ESSID at WiFi client side manually.	
	Disable: Enable the SSID broadcasting. So that	
	the client can scan the SSID.	
Encryption	WPA2-PSK/WPA-PSK/No Encryption	WPA2-PSK
Cipher	CCMP/TKIP/CCMP&TKIP	ССМР
Кеу	WiFi password, can be modified.	
Radio Enable/Disable Enable: open WiFi radio, AP can be used.		Enable



	Disable: close WiFi radio, AP cannot be used,	
	"WLAN" indicator light will be off.	
Network Mode	802.11b/g/n	802.11b/g/n
Channel	Auto, can be selected.	Auto
Bandwidth	40MHz/20MHz	40MHz
Regions	Optional	none
Channel	Optional	CH1~11

In **WiFi--General Settings**, we can change the WiFi SSID and password.

Communication Expert of Industrial (07		Be Honest, Do Best!
USR-G806s Status Services VPN VPN Ventwork Interfaces Silfu Card Network Switch Wiff DHCP Hostnames Static Routes Diagnostics Filewall WMAN/LAN Port DTU System Logout	Wireless Network: Master "USR-G8066-488F" (re0) The Divice Configuration section covers physical settings of the radio hardware. Interface Configuration Wireless Sconfy Wireless Sconfy Wireless Sconfy Wireless Sconfy State Access Point Wireless Sconfy State Access Point Wireless Sconfy	
	Jinan USR IOT Technology Limited http://www.pusr.com/	
Communication Expert of Industrial ECT		Be Honest, Do Best!
USR-G806s Status Services VN Network Interfaces SI/II Card Network Switch Wrff DHCP Hostnames Static Routes Diagnostics Firewall WWAN/LAN Port DTU System Logout	Wireless Network: Master "USR-GB06s-4BBF" (co) The Device Configuration section covers physical settings of the radio hardware. Interface Configuration Rick setting Wrekes Security Cipher Force CCHP (AES) Rev Save B. Appdy	



In **WiFi--Advanced Settings**, we can enable/disable WiFi radio.

Communication Expert of Industrial IOF		Be Honest, Do Best!
USR-G806s Status Services VPN VNEWORK Interfaces SIM Card Network Switch Witi DHCP Hostnames Static Routes Diagnostiss Firewall WD4(AN Port Dignostis) Firewall WD4(AN Port System Logout	Wireless Network: Master "USR-G806s-488F" (ra0) The Jonice Configuration section covers physical settings of the radio hardware. Physical Configuration Coverd Section Status Mode: Master [SBD: USR-G806s-488F ESSD: SCA525C64888 Channel 11 (2.462 Gfc) Bitrate: 1500 Mis/y. Redio Enable/Olsable Enable Network Mode 902.111/g/n Bandwidth 004Hz	
USR IOT	Jinan USR IOT Technology Limited http://www.pusr.com/	Be Honest, Do Best! (аложинсьной) 📑
USR-G806s Status Services VPN VeNkork Interfaces SIM Card Network Switch Vrff DHCP Hostnames Static Routes Diagnostics Firewall WAN/LAN Port DITU System Logout	Wireless Network: Master "USR-G806s-4885" (ref) The Device Configuration section covers physical settings of the radio bandware. Physical Configuration The prior of the physical setting of the radio bandware. The prior of the physical setting of the radio bandware. Strett R. Apply Strett	

We can check the WiFi client information in below interface:



USR IOT Communication Expert of Industrial	al lot						Be H
USR-G806s	Wireless Overvi	ew.					
Status Services	802.11 b Channel: 1	/g/n Wireless Controller 1 (2.462 GHz) Bitrate: 150 Mbit/s					
VPN Network	SSID: US BSSID: 5	R-G806s-488F Mode: Master C:A5:25:C8:48:8E Encryption : -					General Settings Advanced Settings
terfaces M Card	Associated Stat	ons					
Network Switch	SSID	MAC-Address	Host	Signal / Ne	ise	RX Rate / TX Rate	
DHCP	USR-G806s-48	BF 5C:3A:45:5B:16:91	192.168.1.167	0 dBm	-95 dBm	12.0 Mbit/s, MCS 2, 40MHz	36.0 Mbit/s, MCS 5, 40MHz
stnames							
atic Routes							
vall							
AN/LAN Port							
J							
em							
ut							
		Jinan USR IOT 1	echnology Limited	http://ww	w.pusr.com/		

3.7. Network Switch

USR IOT Communication Expert of Indus	dial IGT	Be Honest, Do Best!
USR-G806s	Network Switch	
> Status	Configure the network switching function.	
> Services	Configuration	
> VPN	Priority ETH First Y	
✓ Network		
Interfaces	Reference Proce Luscom v	
SIM Card	Primary Server 114.114.114.114	
Network Switch	5 mm 4 m 5 mm 5 mm 5 mm 5 mm 5 mm 5 mm	
With	Georgian Device 125223555	
Unice	Thirdly Server 8.8.8.8 V	
Static Routes	IP or Domain; such as'114.114.114'or'baidu.com*	
Diagnostics	Ping Interval 10	
> Firewall		
> WAN/LAN Port	Package size 100 g 32-10248/ytes	
> DTU	Timeout 2000	
> System	10-2000milliseconds	
Logout		
	Save & Apply Save	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Item	Description	Default



Priority	ETH First: Select to make WAN Ethernet port as the	ETH First
	primary link.	
	4G First: Select to make SIM card as the primary wireless	
	link.	
	Disable: disable network switch function, access the	
	network with current link.	
Reference Mode	Custom: Router will ping the custom reference	Custom
	address/domain name to check that if the current	
	connectivity is active.	
	Gateway: Router will ping the gateway to check if the	
	current connectivity is active.	
Primary Server	IP address/domain name	114.114.114.114
Secondary Server	IP address/domain name	119.29.29.29
Thirdly Server	IP address/domain name	8.8.8.8
Ping interval (s)	ing interval (s) Set the ping interval, 1-600s.	
Package size(byte) Set the ping package size, 32-1024 bytes.		100
Timeout (ms)	Ping timeout, 100-20000ms	2000

Descriptions: If all of these three IP addresses/domain name cannot be pinged, then the device will change the network connection and continue to perform the next circle of ping detection.



3.8. Diagnostics

USR IOT Communication Expert of Indu	Be Ho	onest, Do Best!
USR-G806s	Diagnostics	
Status Services	Network Utilities	
VPN Vetwork Interfaces	a ring a riscoup	
SIM Card Network Switch Wifi		
DHCP Hostnames Static Poutes		
Diagnostics Firewall		
> WAN/LAN Port > DTU > System		
Logout		
	Jinan USR IOT Technology Limited http://www.pusr.com/	

This interface provides users three tools: Ping, Traceroute and Nslookup.

>Ping: Ping a destination address to check the network status.

>Traceroute: Send traceroute request to a destination address.

>Nslookup: Resolve the domain name to an IP address.

3.9. Hostname

Communication Expert of Indu	na lor				Be H
USR-G806s Status Services VPN V Network	Hostnames Set the host name for the Intrane Host Entries Hostname	et host, restart the device to take effect	IP Address		
Interfaces SIM Card Network Switch Wifi	This section contains no values yes New rule: Hostname	et	IP Address		
DHCP Hostnames Static Routes Diagnostics	New rule		Save & Apply Save	• E	Add
Firewall WAN/LAN Port DTU					
> System Logout					
		Jinan USR IOT Technology Limited	http://www.pusr.com/		

USR-G806s supports custom domain name resolution. Set the hostname and IP address in below interface, to

achieve the mapping between hostname and IP address.

The outside IP address can also be mapped(must be a unique public IP address). The hostname of DHCP and



static IP cannot be a number. After setting all parameters, restart the device to take the parameters effect.

3.10. Static Routes

USR-G806s supports up to 20 static route rules.

ltem	Description	Default
Interface	Lan, wan_4G, wan_wired, vpn	lan
Target	Destination IP address or IP range	Null
Netmask	Netmask of the destination network	Null
Gateway	The IP address to forward to	Null
Metric	Used to make routing decisions	Null

Test example:



The WAN port of router A and router B are connected to the network 192.168.0.0, LAN network of router A is

192.168.2.0, LAN network of router B is 192.168.1.0.

Now we can do a static route in router A, when we access the 192.168.1.X, will automatically forward to router B.



Communication Expert of Industri	Nor
USR-G806s	Static Routing
Status Services	Or the memory and section of the section of th
VPN Vetwork Interfaces	Static IPv4 Routes Interface Target IPv4-Netmask IPv4-Gateway Metric
SIM Card Network Switch	This section contains no values yet
Wifi DHCP	New Rule:
Hostnames Static Routes	Host-IP or Network If target is a network
Diagnostics Firewall MANA AN Peet	Wan_Wind • 19/106.1.0 235.235.0 19/106.02 0
> DTU > System	Save & Apply Save
Logout	
	Jinan USR IOT Technology Limited http://www.pusr.com/

In router B:

Communication Expert of Industrial IOT						Be Honest, Do Best AUTO REFRESH ON
USR-G806s	Static Routing					
> Status	To find information on	static routing configuration, refer	to the figure and table below			
> Services	Static Routing Ro	uting Table				
> VPN	Static IPv4 Routes					
✓ Network	Interface	Target	JPy4-Netmask	IPv4-Gateway	Metric	
Interfaces						
SIM Card	This section contains no	values yet				
Network Switch						
Wifi	New Rule:					
DHCP	Interface	Target	<u>IPv4</u> -Netmask	IPv4-Gateway	Metric	
Hostnames		Host-IP or Network	If target is a network			
Diamostics	wan_wired 🗸	192.168.2.0	255.255.255.0	192.168.0.200	0	a Add
Firewall			1. <u> </u>			
> WAN/LAN Port						
> DTU			Save & App	ly Save		
> System						
Logout						
Jinan USR IOT Technology Limited http://www.pusr.com/						

After setting all parameters, restart the device.

Ping from T1 to T5:



从太网适配器 以太网: 特定的 DNS 后缀 链接 IP∀6 地址. 地址 : 1an : fe80::50c0:be1a:24a0:cb78%25 : 192.168.2.200 : 255.255.255.0 : 192.168.2.1 本地销 ΤP 掩码 网关. 默 无线局域网适配器 WLAN: 媒体状态 媒体已断开连接 连接特定的 DNS 后缀 1an :\Users\Administrator>ping 192.168.1.7 Ping 192.168.1.7 具有 32 字节的数据: 192.168.1.7 的回复: 字节=32 时间=2ms TTL=253 192.168.1.7 的回复: 字节=32 时间=1ms TTL=253 192.168.1.7 的回复: 字节=32 时间=1ms TTL=253 192.168.1.7 的回复: 字节=32 时间=1ms TTL=253 在 É 92 168 的 Ping 统计 4, 丢失 = 0 (0% 丢失), 1ms

4. VPN

USR-G806s supports PPTP, L2TP, IPSEC, openVPN and GRE.

No.	Protocol	Version
1	РРТР	V1.10.0
2	L2TP	V1.3.15
3	IPSec	V5.3.3
4	OpenVPN	V2.3.18

4.1. PPTP Client

This interface allows users to set the PPTP server parameters.



Communication Expert of Industrial IOT		Be Honest, Do Best ===
USR-G806s	PPTP Configuration	
> Status	PPTP Parameters	
Services VPN	Server Address 192.168.0.2	
PPTP	Interface Auto	
L2TP IPSec	Username	
OpenVPN	Password 2	
GRE VPN Status	Remote Subnet 192.168.55.0 eg: 192.168.100	
Network Eirewall	Remote Subnet Mask 255.255.255.0 @ eg.255.255.0	
> WAN/LAN Port	NAT 🖾	
> DTU	Enable MPPE Encryption	
> System Logout	MTU 1450 © 600-1450	
	Extra Options	
	Append pppd options,Non - professional,careful modification Enable Static Trunnel IP Address	
	Default Gateway 🛛 🌚 All traffic goes through VPN, except the WAN protocol is PPPOE	
	Enable Ping 🔹 🔘 Reconnect When Fails to Ping	

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Item	Description	Default
Server address	VPN server address or domain name	192.168.0.2
Interface	wan_4G, wan_wired or auto	auto
Username/Password	Get from the VPN server	Null
Encryption	MPPE or no encryption	МРРЕ
MTU	Consistent with the VPN server	1450
NAT	The source IP address of host behind G806s will be	Enable
	disguised before accessing the remote address.	
Remote Subnet/Mask	When NAT is enabled, can achieve the subnet	192.168.55.0/255.255.2
	communication under VPN.	55.0
Enable Static Tunnel IP	When it is disabled, VPN server will assign an IP	Disable
Address	address dynamically.	
Extra Options	Append pppd parameters, magic number.	Null
Enable ping	Real-time VPN online detection and reconnection	Disable
	mechanism.	


Communication Expert of Indus	संब (01	Be Honest, Do Best!
USR-G806s	Password	s
> Status	Remote Subnet	192.168.55.0 ● eg: 192.168.100
> Services	Remote Subnet Mask	255.255.255.0 • cc 255.255.255.0
VPN	NAT	0
L2TP	Enable MPPE Encryption	o
IPSec	MTU	1450
OpenVPN		
GRE V/DN Status	Extra Options	
> Network		Append pppd options, Non - professional, careful modification
> Firewall	Enable Static Tunnel IP Address	
> WAN/LAN Port	Default Gateway	Ø All traffic goes through VPN, except the WAN protocol is PPPOE
> DTU > System	Enable Ping	@ Reconnect When Fails to Ping
Logout	Ping Address	Set address eg 10.12
	Interval	
	Max Ping Tries	3
		integer
		Som & Araba Som
		Jinan USR IOT Technology Limited http://www.pusr.com/

After connecting to PPTP server, we can check the connection status in "VPN Status".

Communication Expert of Industrial IOT		Be Honest, Do Best!
USR-G806s		
 Status Services 	VPN VPN Status	
VPN PPTP L2TP IPSec	Type: PPTP IP Address: 192.168.111.37 Netmask: 255.255.255 Gateway: 192.168.111.30	
OpenVPN GRE VPN Status > Network	Connected Time: 1s	
Firewall WAN/LAN Port DTU Sectors		
Logout		
	Jinan USR 10T Technology Limited http://www.pu	isr.com/



4.2. L2TP

L2TP is the layer 2 tunneling protocol which similar to PPTP. G806s supports tunnel password authentication,

supports MPPE and L2TP over IPSEC encryption.

In **VPN---L2TP**, enable L2TP Client, set the related parameters.

Communication Expert of Indus	arial IOT	Be Honest, Do Best!
USR-G806s	L2TP Client	Enable Disable
	Server Address	192.166.0.2
> Status	Interface	Auto
> Services		
VPN	Username	
РРТР	Password	<i>B</i>
L2TP	Tunnel Name	usr_router
IPSec	Tunnel Password	<i>a</i>
OpenVPN		Character(0-50)
GRE	Enable IPsec	
VPN Status	Remote Subnet	192.168.55.0
> Network		1 49: 132 180 100
> Firewall	Remote Subnet Mask	255.255.255.0 0 q: q: 255.255.05
WAN/LAN Port	NAT	
> DIU	Easkie MDE Ease mine	
Locout	Enable PPPE End ypdon	
Lugout	MTU	1450 00 000-1450 00 000 000 000 000 000 000 000 000 0
	Extra Options	
		Append pppd options.Non - professional.careful modification
	Enable Static Tunnel IP Address	
	Default Gateway	All traffic goes through VPN, except the WAN protocol is PPPOE
	Enable Ping	Reconnect When Fails to Ping
		Jinan USR IOT Technology Limited http://www.pusr.com/

ltem	Description	Default
Server address	VPN server address or domain name	192.168.0.2
Interface	wan_4G, wan_wired or auto	auto
Username/Password	Get from the VPN server	Null
Encryption/Authentica	Tunnel password, MPPE, IPSEC, consistent with the	МРРЕ
tion	VPN server.	
Enable Static Tunnel IP	When it is disabled, VPN server will assign an IP	Disable
Address	address dynamically.	
Extra Options	Append pppd parameters, magic number.	Null
NAT	The source IP address of host behind G806s will be	Enable
	disguised before accessing the remote address.	
Remote Subnet/Mask	When NAT is enabled, can achieve the subnet	192.168.55.0/255.255.2
	communication under VPN.	55.0
Enable ping	Real-time VPN online detection and reconnection	Disable
	mechanism.	



4.3. IPSec



Item	Description	Default
Interface	wan_4G, wan_wired or auto	auto



Remote VPN Endpoint	VPN Client/Server, remote endpoint IP/domain	192.168.0.2
Mode	Main, aggressive	main
Tunnel type	Site to site, site to host, host to host, host to site	Site to site
Local subnet	IPSec local subnet and mask	192.168.1.0/24
Remote subnet	IPSec remote subnet and mask	192.168.55.0/24
Local Identifier	IP address or FQDN preceded by @, e.g. @domain	@client
Peer Identifier	IP address or FQDN preceded by @, e.g. @domain	@server
IKE Encryption	Phase 1 IKE encryption algorithm, authentication	3DES/MD5/Group2
	and DH group settings.	
IKE Lifetime	Set the lifetime in IKE negotiation, 400~86400s	28800
Authentication Method	Pre-shared key	РЅК
ESP Encryption	3DES/AES-128/AES-192/AES-256	AES-128
ESP Authentication	SHA-1/SHA2-256/MD5	SHA-1
ESP Lifetime	Set the ESP lifetime/s	3600
PFS Group	None/DH1/DH2/DH5	DH2
DPD Interval	Set the interval after which DPD is triggered if no	60
	IPsec protected packets is received from the peer/s	
DPD Timeout	Set the timeout of DPD packets/s	60
DPD Action	Sets the action for connection detection,	Restart
	None/Clear/Hold/Restart	



4.4. OpenVPN

Communication Expert of Indu	atrial IOT			Be Honest, Do Best!
USR-G806s	OpenVPN	Enable Disable		
	Topology	Subnet V		
 Status Services 	Protocol	UDP V		
V VPN	Peer Port	1194		
PPTP L2TP	TUN/TAP	TUN 🗸		
IPSec	Peer Address	192.168.0.2		
OpenVPN	Interface	Auto Auto refers used default route interface to connect		
VPN Status	Authentication Method	Certificate 🗸		
> Network	Root CA	选择文件		
VAN/LAN Port	Certificate File	选择文件 未选择任何文件		
> DTU	Private Key	选择文件 未选择任何文件		
> System	TLS-Auth Key	运输文件 果运输任何文件		
Logout	NAI Enable Veenalive	2		
	Enable LZO	Adaptive V		
	Encrypt Algorithm	Blowfish(128)		
	Hash Algorithm	None 🗸		
	TLS Method	tls-auth 🗸		
	MTU	1500		
		Jinan USR IOT Technology Limited	http://www.pusr.com/	

Item	Description	Default
TUN/TAP	TUN/TAP	TUN
Protocol	TCP/UDP	UDP
Peer Port	Listening port of the OpenVPN server	1194
Peer Address	IP/domain name of the OpenVPN server	192.168.0.2
Interface	Auto/wan_wired/wan_4g	Auto
Root CA	Import the ca root file to the router	Null
Certificate File	Import the client certificate file to the router	Null
Private Key	Import the client private key to the router	Null
TLS-Auth Key	Import the TLS authentication key to the router	Null
Encrypt Algorithm	None/Blowfish-128/DES-128/3DES-192/AES-	Blowfish-128
	128/AES-192/AES-256	
Hash Algorithm	None/SHA1/SHA256/SHA512/MD5	None
Enable LZO	Yes/No/Adaptive	Adaptive
Enable Keepalive	Defaults to 10,120, consistent with VPN server	On
МТU	Consistent with VPN server	1500
Enable Ping	Reconnect when fails to ping	Off

After connected successfully, we can check the connection status in "VPN - VPN Status" .



Attached is the OpenVPN server configuration under Linux system:

port 1194 proto udp dev tun user nobody group nogroup persist-key persist-tun keepalive 10 120 topology subnet server 10.8.0.0 255.255.255.0 ifconfig-pool-persist ipp.txt push "dhcp-option DNS 8.8.8.8" push "dhcp-option DNS 8.8.4.4" push "redirect-gateway defl bypass-dhcp" crl-verify crl.pem ca ca.crt cert server_Jz40qi4AWJnZuN8X.crt key server_Jz40qi4AWJnZuN8X.crt key server_Jz40qi4AWJnZuN8X.key tls-auth tls-auth.key 0 dh dh.pem auth SHA256 cipher AES-256-CBC #tls-server #tls-version-min 1.2 #tls-cipher TLS-DHE-RSA-WITH-AES-128-GCM-SHA256 status openvpn.log verb 3

4.5. GRE

Communication Expert of Indu	Be Kor	Honest, Do Best!
USR-G806s	GRE Configuration	
> Status	GRE Parameters GRE 🔍 Enable 🗅 Disable	
VPN	Interface Name gre1 gre1 gre1	
L2TP	Local Public IP Address 192.168.0.151	
OpenVPN	Peer CRE Interface IP 10.0.0.1	
GRE VPN Status	Peer Subnet 192.166.55.0/24 @ eg192.166.1024	
Network Firewall	Local GRE Interface IP 10.10.10.2 Address	
WAN/LAN Port DTU	TTL 255 1-255	
> System Logout	MTU 1450 600-1450	
	Enable Ping Reconnect When Fails to Ping	
	Save & Apply Save	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Item	Description	Default
Local public IP	Local wan_wired or wan_4g address	192.168.0.151
address		
Peer public IP address	Remote GRE WAN IP address	192.168.0.10



Peer GRE Interface IP	Remote GRE tunnel IP address	10.10.10.1
Address		
Peer Subnet	IP/Mask:	192.168.55.0/24
	255.255.255.0: IP/24	
	255.255.255.255: IP/32	
Local GRE Interface IP	Local GRE tunnel IP address	10.10.10.2
Address		
TTL	Set the TTL parameters(1~255)	255
MTU	Set the MTU(600~1450)	1450

5. Firewall

5.1. General Settings

Communication Expert of Indu	anal for		Be H	lonest, Do Bes 🚚
USR-G806s Status Services VPN Network Frewall General Settings Port Forwards Traffic Rules Access Restrictions Rate Limiting	Firewall - Zone Settings The firewall creates zones over your network interfaces to control network traffic flow. General Settings Enable SYN-flood protection Drop invalid packets Input accept Forward accept			
WAN/LAN Port DTU System Logout	Zones => Forward Source Zone => Destination zones Input Output Forward Inn: Im: Im: Im: Im: Im: Im: Im: Im: Im: Im	vard Masquerading apt • apt • 2	MSS clamping	
	Jinan USR IOT Technology Limited http://www.pusr.com/			

Descriptions:

- 1.Input: Data packets access to the router's IP.
- 2.Output: Data packets sent by the router's IP.
- 3.Forward: Data forwarding between the interfaces, not go through the router.
- 4.Masquerading: WAN and 4G interface. The source IP address will be disguised before accessing the external network.
- 5.MSS clamping: Limit the MSS packets, generally is 1460.



5.2. Traffic Rules

Traffic rules can filter specific internet data types and block internet access requests to enhance the security of

the network.



ltem	Description	Default
Enable	1	Enable
Name	Name of this rule	-
Restrict to address	IPv4 only	IPv4 only
family		
Protocol	TCP+UDP/TCP/UDP/ICMP	TCP+UDP
Match ICMP type	Matched ICMP rule, choose Any	Any
Source zone	Any zone/LAN/WAN	LAN
Source MAC address	Source MAC address to match this rule, can be	Any
	multiple MAC addresses.	
	Each MAC address is separated by spaces.	
	Any: match all the MAC addresses.	
	Note: When matching the source MAC address,	
	leave the source IP address blank.	
Source IP address	Source IP address to match this rule, can be a IP	Any
	range, like 192.168.1.100-192.168.1.200.	
	Any: match all the IP addresses.	



	Note: When matching the source IP address, leave	
	the source MAC address blank.	
Source port	Source IP port to match this rule, can be a port	Null
	range, like 8000-9000.	
	Null: match all the ports.	
Destination zone	Device/Any zone/LAN/WAN	WAN
Destination address	The destination IP address to be accessed.	Any
	Any: match all the addresses.	
Destination port	The destination port to be accessed.	Null
	Null: match all the ports.	
Action	After receiving such data packets, you can select:	Accept
	drop, accept, reject, or don't track.	

5.2.1. IP Address Blacklist

In Traffic Rules--New forward rule, enter the name and then click Add and edit.

Communication Expert of Industrial IOT	Be Honest, Do Be
	Firewall - Traffic Rules
USR-G806s	Traffic rules define policies for packets traveling between different zones, for example to reject traffic between certain hosts or to open WAN ports on the router.
> Status	Traffic Rules
> Services	Name Protocol Action Enable Sort
> VPN > Network ~ Firewall	Allow- IPV4-ICMP with type echo-request Accept input From any host in wan To any router IP on this device
General Settings	Open ports on router:
Port Forwards	Name Protocol External port
Traffic Rules	New insut rule TCP+UDP V State
Access Restrictions	
Rate Limiting	New forward rule
> WAN/LAN Port	Name Source zone Destination zone
> DIU Sustam	had lan v wan v 2 Md and add
Logout	
LOGOUL	Source NAT
	Name Protocol Action Enable Sort
	This section contains no values yet
	New source NAT:
	Name Source zone Destination zone To source IP To source port
	New SNAT rule Ian V wan V Please cho V Do not rewrite Add and edit
	Jinan USR IOT Technology Limited http://www.pusr.com/

In below interface, set the Source zone to lan, set the source IP address to a specific IP address, like

192.168.1.111.



Communication Expert of Indu	TOT	- Be Honest, Do Best!
USR-G806s	Enable	Disable
	Name	test
> Status	Restrict to address family	IPv4 only V
> Services	Protocol	TCP+UDP v
> VPN	Match ICMP type	any 👻
× Firewall	Source zone	
General Settings		
Port Forwards		
Traffic Rules		O wan: wan_wired: 🖉 wan_4g: 🖉
Access Restrictions	Source MAC address	any 👻
Rate Limiting		Only match incoming traffic from these MACs.
> WAN/LAN Port	Source IP address	192.168.1.111 Only match incoming traffic from this IP or range.
> DTU	Source port	any
System		Only match incoming traffic originating from the given source port or port range on the client host
Logout	Destination zone	O Device (input)
		O Any zone (forward)
		O tan: fan: 99 e
		wan wird: *** wan 40: 2
	Destination address	any Redirect matched incoming traffic to the specified internal host
	Destination port	
	Deschadori por	Redirect matched incoming traffic to the given port on the internal host
	Action	· · · · · · · · · · · · · · · · · · ·
		Jinan USR IOT Technology Limited http://www.pusr.com/

Configure the **Destination zon**e to **wan**, change the destination address to **any**, change the **Action** to **reject**. Click

Save&Apply.

Communication Expert of Industrial IOT		Be Honest, Do Best!
USR-G806s	Match ICMP type any V	
> Status	Source zone O Any zone	
> Services	● lan: lan: gff ★	
> VPN	○ wan: wan_wired: 👷 wan_4g: 🧾	
> Network	Source MAC address any	
General Settings	Source IP address 192.166.1.111 In the second se	
Traffic Rules	Source port Only match incoming traffic originating from the given source port or port range on the client host	
Rate Limiting	Destination zone O Device (input)	
> WAN/LAN Port	O Any zone (forward)	
> DTU	O Ian: III 👷 🖷	
> System Logout	wan: wan_wired: ﷺ wan_4g: 🔬	
	Destination address any Redirect matched incoming traffic to the specified internal host	
	Destination port any Gedirect matched incoming traffic to the given port on the internal host	
	Action reject	
	Back to Overview Save & Apply Save	
	Jinan USR IOT Technology Limited http://www.pusr.com/	



Communication Expert of Industrial IOT				Be I
USR-G806s	Firewall - Traffic Rules			
Status	Traffic rules define policies for packets traveling between different zones, for example to reject traffic between different zones.	tween certain hosts or to open W	AN ports on the router.	
vices	Traffic Rules			
4	Name Protocol	Action	Enable Sort	
letwork				
Firewall General Settings	Allow PN-4-CMP with type scho-request Ping From any host in wan To any router IP on this device	Accept input		Modify Delete
Port Forwards Traffic Rules	test IPv4-TCPUDP From IP 192.1681.111 in Ian To any host in wan	Refuse forward		Modify Delete
ss Restrictions	Open ports on router			
e Limiting	Name Protocol External port			
AN/LAN Port				
	New input rule			
m ut	New forward rule:			
	Name Source zone Destination zone			
	New forward rule Ian v wan v Add and edit			
	Source NAT			
	Name Protocol		Action	Enable Sort
	This section contains no values yet			
	Name and the Alary			
	Jinan USR IOT Technology Limited http://www.	ousr.com/		

In this way, the device with IP 192.168.2.133 is forbidden to access all extranets.

5.2.2. IP Address Whitelist

In Traffic rules--New forward rule, enter the rule's name, click Add and edit to create a whitelist rule.

Communication Oppert of Industrial IOT			Be I	lonest, Do Best!
LICD C206c	Traffic Rules			•
03N-00008	Name Protocol	Action Er	nable Sort	
> Status > Services	Allow- IPv4-ICMP with type echo-request Pring From any-host in wan To any router IP on this device	Accept input	• • Modify 🗷 Delete	
> VPN > Network > Firewall	test IPv4-TCPUDP From IP 192.168.1.111 in Jan To any Aost in wan	Refuse forward 🛛 🖉	🔹 🔹 📓 Modify 💌 Delete	
General Settings	Open ports on router:			
Port Forwards	Name Protocol External port			
Traffic Rules	New input rule TCP+UDP V			
Access Restrictions				
Rate Limiting	New forward rule:			
> WAN/LAN Port	Name Source zone Destination zone			
> DTU	Test2 Ian v wan v 🖻 Add and edit			
lacout				
Logour	Source NAT			
	Name Protocol	Action	Enable Sort	
	This section contains no values yet			
	New source NAT:			
	Name Source zone Destination zone To source	IP To source port		
	New SNAT rule Ian 🗸 wan 🗸 Please	cho 🕶 🛛 Do not rewrite	🖻 Add and edit	
	Jinan USR IOT Technology Limited http://www.pusr.co	om/		•

In below interface, set the **source zone** to **lan**, set the **source IP address** to a specific one, like 192.168.1.222.

USR IOT Communication Expert of Indus	संब 107	Be Honest, Do Best!
	Firewall - Traffic Rules	- Test2
USK-G806s	This page allows you to char	ge advanced properties of the traffic rule entry, such as matched source and destination hosts.
> Status	Enable	Clisable
> Services	Name	Test2
VPN	Restrict to address family	IPv4 only
 Firewall 	Protocol	TCP+UDP v
General Settings	Match ICMP type	any
Port Forwards	Source zone	
Traffic Rules		
Access Restrictions		
Rate Limiting		Wan: wan_wred: 🖉 wan_ag: 🔬
> WAN/LAN Port > DTU	Source MAC address	any V Only match incoming traffic from these MACs.
> System	Source IP address	192.168.1.222
Logout		Only match incoming traffic from this IP or range.
	Source port	any Only match incoming traffic originating from the given source port or port range on the client host
	Destination zone	O Device (input)
		O Any zone (forward)
		O lan: lan: 📰 👷
		● wan. wan_wired: ﷺ wan_4g. ≧
	Destination address	any Redirect matched incoming traffic to the specified internal host
		Jinan USR IOT Technology Limited http://www.pusr.com/

Change the destination zone to WAN, the destination address to any, the Action is accept. Click Save&apply.

USR IOT Communication Expert of Indu	strial KOT	Be Honest, Do Best!
USR-G806s	Match ICMP type	any v
Statuc	Source zone	O Any zone
Services		Inn: Inn: 22
> VPN		🔿 🙀 wan_ wan_wired: 👷 🛛 wan_4g: 🐊
> Network	Source MAC address	any Or on match incoming traffic from these MACs.
General Settings	Source IP address	192.168.1.222 O Chy match incoming traffic from this (P or range.
Traffic Rules	Source port	Only match incoming traffic originating from the given source port or port range on the client host
Rate Limiting	Destination zone	O Device (input)
> WAN/LAN Port		O Any zone (forward)
> DTU		O fan: lan: gr g
> System		🖲 wan: wan_wired: 👷 wan_4g: 者
Logout	Destination address	any Redirect matched incoming traffic to the specified internal host
	Destination port	any Provide a provide the given port on the internal host
	Action	accept
	Back to Overview	Save & Apply Save
		Jinan USR IOT Technology Limited http://www.pusr.com/

Then we need to set another rule to reject all the communication, the source IP address and destination IP address are "any", set the action to "reject". Please note the order of the two rules, the accepted rule must come before the rejected rule.



Communication Expert of Industrial KOT				Be
USR-G806s	Firewall - Traffic Bules			
	Traffic rules define policies for packets traveling between different zones, for example to reject traffic betw	ween certain hosts or to open WA	N ports on the router	с
atus				
rvices	Traffic Rules			
N	Name Protocol	Action	Enable So	ort
Network Firewall General Settings	Allow- IPv4-ICMP with type echo-request Ping From any host in wan To any router IP on this device	Accept input		Modify Delete
Port Forwards Traffic Rules	Test2 IPv4-TC9UDP From IP 192.168.1.222 in Jan To any horit in wan	Accept forward	2	• • 🖉 Modify 🖹 Delete
Access Restrictions Rate Limiting	Test 1 IPv4-TCPUDP From any host in lan To any host in wan	Refuse forward	8	• • Modify Delete
N/LAN Port				
	Open ports on router:			
n	Name Protocol External port			
ut	New input rule TCP+UDP V			
	New forward rule:			
	Name Source zone Destination zone			
	New forward rule Ian V wan V Add and edit			
	Source NAT			
	Name Protocol		Action	Enable Sort

5.3. NAT

5.3.1. Masquerading

Masquerading will disguise the source IP address of the data packets to the WAN IP address of the router. The masquerading and MSS clamping of the WAN interface must be enabled, which must be disabled in the LAN interface.

Communication Expert of Industrial IOT						Be Honest, Do Best!
USR-G806s Status Services VPN Network Frewall General Settings Port Forwards Traffic Rules Access Restrictions Rate Limiting WAN/LAN Port DTU System Logout	Frewall - Zone Settings The firewall creates zones over your network interfaces to control nor General Settings Enable SYM-filod Drop invalid packets Input accept Output accept Forward Source Zone => Destination zones Int: [m:]] []	thwork traffic flow.	Dutput Forward	Masquerading	MSS damping	
	wan: wan_wired: ﷺ wan_4g: ﷺ = [accept]	accept v a	Apply Save		8	@ Modfy

5.3.2. SNAT

Item	Description	Default
Enable	/	Enable
Name	Name of this rule	1
Protocol	TCP+UDP/TCP/UDP/ICMP	TCP+UDP
Source IP address	Source IP address or IP range to match this rule,	Any
	like: 192.168.1.100 or 192.168.1.100-192.168.1.200	
	Any means match all the source IP addresses.	
Source port	Source port or port range to match this rule, like	Null
	9999 or 8888-9999.	
	Null means match all the source ports.	
Destination IP address	Destination IP address or IP range to match this	Null
	rule, like 192.168.2.100 or	
	192.168.2.100-192.168.2.200	
	Null means match all the destination addresses.	
Destination port	Destination port to or port range to match this rule,	Null
	like 9999 or 8888-9999.	
	Null means match all the destination ports.	
SNAT IP address	Change the source IP of the matched traffic to this	Custom
	address	
SNAT port	Change the source port of the matched traffic to	Null
	this port, null means use the original source port	

Source NAT is a special form of packet masking that changes the source address of a packet leaving the router. When using it, we need to disable the masquerading of the WAN port.



Communication Expert of Industrial IGT							Be Honest, [Do
USR-G806s	Firewall - Zone Settings							
Status	The firewall creates zones over your network interfaces to control	network traffic flow.						
Services	General Settings							
VPN Network	Enable SYN-flood 🛛							
Firewall	Drop invalid packets							
General Settings	Input accept 🗸							
Port Forwards Traffic Pular	Output accept 🗸							
Access Restrictions	Forward accept 🗸							
Rate Limiting								
WAN/LAN Port	Zerre Conned							
DTU	Source Zone => Destination zones	Input	Output	Forward	Masguerading	MSS clamping		
System								
Logout	lan: [an: ﷺ ⇒ wan	accept 🛩	accept 🛩	accept 🗸			Modify	
	wan: wan_wired: 2 wan_4g; 2 = ACCEPT	accept 🗸	accept 🗸	accept 🗸			Modify	
		S	ave & Apply S	ave				

Then create a source NAT rule.

Communication Expert of Industrial IOT	Be Honest, Do B
USR-G806s	Per Proventing Provent
> Status	Test UN-4-TOSUDP Refue forward
> Services	Open ports on router:
> Network	Name Protocol External port
✓ Firewall	New input rule TCP+UDP V
General Settings	
Port Forwards	New forward rule:
Tranic Rules	Name Source zone Destination zone
Access Restrictions	New forward rule Ian V wan V 🖻 Add and edit
Rate Limiting	
> WAN/LAN Port	Source NAT
> DTU	Name Protocol Action Enable Sort
> System	
Logout	This section contains no values yet
	New source NAT:
	Name Source zone Destination zone To source IP To source port
	test lan V wan V 192.168.9.1 V Do not rewrite Add and edit
	Save & Apply Save
	Jinan USR IOT Technology Limited http://www.pusr.com/

Click Add and edit.



Communication Expert of Indu	Be Honest, Do Best!
USR-G806s	Firewall - Traffic Rules - SNAT test This page allows you to change advanced properties of the traffic rule entry, such as matched source and destination hosts.
 Status Services VPN Network Firewall General Settings Port Forwards Traffic Rules Access Restrictions Rate Limiting WAN/LAN Port DTU System Logout 	Interpage allows you to thinge advanced properties of the traffic rule entry, such as matched source and destination hosts. Finable Finable Finable Finable Finable
	Jinan USR IOT Technology Limited http://www.pusr.com/

Default to enable all the source IP address and destination IP address. Click **Save&Apply**.

Communication Expert of Industrial IOT			Ве
USR-G806s From IP 192 To any host	168.1.222 in Jan in Wan		a riodity as belete
Test1 IPv4-TCPUD From any In Status To any host	s stin Jan n wan	Refuse forward 🗾	• • Modify Delete
Services Open ports on route	ar:		
Network Name	Protocol External port		
Firewall New input rule	TCP+UDP 🗸		
General Settings			
Port Forwards New forward rule:			
Traffic Rules Name	Source zone Destination zone		
Access Restrictions New forward rule	lan 👻 wan 🍟 🖻 Add and edit		
Rate Limiting			
> WAN/LAN Port Source NAT			
> DTU Name Protocol		Action Enab	e Sort
> System			
Logout test Any iCMP From any ho To any host	st in Ian n wan	Rewrite to source IP 2 192.168.9.1	• • Modify E Delete
New source NAT:			
Name	Source zone Destination zone	To source IP To source port	
New SNAT rule	lan 🗸 wan 🗸	Please cho 🛩 Do not rewrite	Add and edit
	Save & Ap	ply Save	
	Jinan USR IOT Technology Limited http://	//ww.pusr.com/	

We have changed the source IP address that left the router to 192.168.9.1. When we use the device connected to

the router (IP:192.168.1.114) to ping the PC connected to the same switch as the router (IP:192.168.13.4), the

source IP address of the ICMP packet to 192.168.13.4 is 192.168.9.1, not 192.168.1.114.

		🖻 🖬 🗙 😂 占	। ् 🗢 🔿 🕢 🕹		∃ Q, Q, Q, [7] ¥ ⊠ 🥵 ‰ 🙀
过滤	ip.addr == 1	92.168.13.4		▼ 表达式	t 清除 应用
No.	Time	Source	Destination	Protocol	ol Info
	1 0.000000	192. 168. 13. 4	220. 195. 22. 209	TCP	50379 > http [FIN, ACK] Seq=1 Ack=1 Win=64708 Len=0
	2 0. 689352	192. 168. 9. 1	192. 168. 13. 4	ICMP	Echo (ping) request (id=0x1d3c, seq(be/le)=57/14592, tt1=64)
	3 0. 689426	192. 168. 13. 4	192. 168. 9. 1	ICMP	Echo (ping) reply (id=0x1d3c, seq(be/le)=57/14592, tt1=128)
	6 1.689615	192. 168. 9. 1	192. 168. 13. 4	ICMP	Echo (ping) request (id=0x1d3c, seq(be/le)=58/14848, tt1=64)
	7 1.689687	192. 168. 13. 4	192. 168. 9. 1	ICMP	Echo (ping) reply (id=0x1d3c, seq(be/le)=58/14848, tt1=128)
	8 1.823459	192. 168. 18. 4	192. 168. 4. 69	SMD2	Greate Request File.
	9 1.825746	192. 168. 4. 63	192. 168. 13. 4	SMB2	Create Response File:
	0 1 826091	192 168 13 4	192 168 4 63	SMB2	Create Request File:



5.3.3. Port Forwards

Port forwarding rules can map a specific port of the WAN interface to a intranet host.

USR IOT Communication Expert of Industrial IOT				Be Honest, Do Best!
USR-G806s	Firewall - Port Forwards			
> Status	Port forwarding allows remote computers on the Intern	et to connect to a specific computer or service within the p	rivate LAN.	
> Services	Port Forwards			
> VPN	Name Match Rules	Forward	ing To	Enable Sort
> Network				
✓ Firewall	This section contains no values yet			
General Settings				
Port Forwards	New Port Forwarding Rules:			
Traffic Rules	Name Prot	tocol External External port zone	Internal Internal IP Internal port zone address	
Access Restrictions	test Tra		lan ¥ 102 158 1 10¥ 80	3) Add
Rate Limiting	10		1011 · 496-300-314C · 00	
> WAN/LAN Port				
System		Save & Apply Save		
Logout				
	Jinan USR K	OT Technology Limited http://www.pusr.com/	<i>k</i>	

Figure 17. Port forwards

S USR IOT Communication Expert of Industrial IOT			Be H
USR-G806s Status Services	Firewall - Port Forwards Port forwarding allows remote computers on the Internet to co Port Forwards	onnet to a specific computer or service within the private LAN.	
> VPN > Network	Name Match Rules	Forwarding To	Enable Sort
Firewall General Settings	test IPv4-TCP UDP From any host in wan Via any router IP at port 81	IP 192.168.1.100, port 80 in lan	🗹 🔸 🔹 🗵 Delete
Port Forwards Traffic Rules	New Port Forwarding Rules:		
Access Restrictions	Name Protocol	External External port Internal Internal IP zone zone address	Internal port
Rate Limiting	New port forward TCP+UDP	✓ wan ✓ lan ✓	✓ Add
> DTU > System Logout		Save & Apply Save	
	Jinan USR IOT Tech	hnology Limited http://www.pusr.com/	

Figure 18. Add port forward successfully

Item	Description	Default
Name	Name of this rule	Null
Protocol	TCP+UDP/TCP/UDP	TCP+UDP



External zone	Including wired wan、4G、VPN	wan
External port	Can be a port or port range, like: 8000-9000	Null
	When the external port and internal port are	
	empty, it is DMZ function.	
Internal zone	LAN network	lan
Internal IP address	LAN IP address of the router	Null
Internal port	Can be a port or port range, like: 8000-9000	Null
	When the external port and internal port are	
	empty, it is DMZ function.	

5.3.4. NAT DMZ

Port forwarding rules map a specified WAN port to a intranet host, DMZ rules will map all ports of the WAN

interface to a intranet host.

DMZ rules are set in the port forwarding interface, in DMZ mode, do not need to set the external port and internal port.

Communication Expert of Industri	akor	onest, Do Best!
USR-G806s	Firewall - Port Forwards	
> Status	Port forwarding allows remote computers on the Internet to connect to a specific computer or service within the private LAN.	
> Services	Port Forwards	
> VPN	Name Match Rules Forwarding To Enable Sort	
> Network		
✓ Firewall	This section contains no values yet	
General Settings		
Port Forwards	New Port Forwarding Rules:	
Traffic Rules	Name Protocol External port Internal Internal IP Internal Ort	
Access Restrictions	zone zone address	
Rate Limiting	test TCP+UDP v wan lian 182.166.1.1(v Add	
> WAN/LAN Port		
> DTU	Save 8. Apply Save	
> System		
Logout		
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Figure 19. Port forwarding

>Please ensure the device has connected to the network before sending email.

>WAN-4G online: Alarm after successful 4G networking.

>WAN-4G offline: Alarm after connecting to the 4G network again.

>Network type change: Alarm when changing the network type.



>WAN up: Alarm when connecting to wired network.

>WAN down: Alarm when the wired network disconnect.

>System reboot: Alarm if the device restart without power off.

Add an alert rule.

Communication Expert of Indus	strial IOT					Be Honest, Do Best ===
USR-G806s	Alert					
> Status	Alert					
✓ Services	Alert Confi	3				
Phtunnel	Index	Description	SMS Enable	Email Enable	Facility Information	
Email						
SMS	This section of	ntains no values yet				
Alert	Add 🔝					
SNMPD						
RemoteManager				Save & Apply Save		
USR Cloud						
Base Station						
> VPN						
> Network						
> Firewall						
> WAN/LAN Port						
> DTU						
System						
Logout						
		Been H	CD IOT Technology Limited	http://www.puer.com/		
		Jinan U	SK TOT Technology Limited	http://www.pusr.com/	i i i i i i i i i i i i i i i i i i i	

Figure 20. Add an alert rule

Communication Expert of Indust	Be H	onest, Do Best!
USR-G806s	Alert - Events Notification - index(~1 ") Note: SMS can be up to 140 bytes long. The content of the SMS is composed of alarm event content + alarm description + alarm time + device information. If the description information filled in is too	
Services Phtunnel	Central Settings Event Selection Event Selecti	
Email SMS Alert	Descriptions alarm1 There SMS supports up to 140 bytes. Send SMS Enable	
Dynamic DNS SNMPD RemoteManager	Phone Number Send Email Enable V	
USR Cloud Base Station	Email Address Device Information Disable	
Network Firewall	IMEL SN MAC ICCID	
> DTU > System		
Logout		
	Jinan USR 10T Technology Limited http://www.pusr.com/	

Figure 21. Device information



USR IOT Communication Expert of Indu	Be Honest, Do Best
USR-G806s	Alert - Events Notification - Index("1")
> Status	Note: SMS can be up to 140 bytes long. The content of the SMS is composed of alarm event content + alarm description + alarm time + device information. If the description information filled in is too long, the received SMS may be incomplete.
 Services Phtunnel Email Aler Dynamic DNS SNMPD RemoteManager USR Cloud Base Station VPN Network Firewall WAN/LAN Port DTU System Logout 	Concred S-string: Twent S-decision WAN_460 Online WAN_460 Online WAN_460 Online WAN Up WAN Up WAN Up WAN Up WAN Down System Reboot
	Jinan USR IOT Technology Limited http://www.puss.com/

Figure 22. SNMPD

5.4. SNMPD

USR-G806s supports simple SNMP protocol. This function is default to be disabled.

Communication Expert of Indu	utrial for Be Hone	est, Do Best!
USR-G806s	SNMPD	
> Status	Simple settings, you can turn this feature off or on.	
✓ Services	Enable SNMP	
Phtunnel		
Email		
SMS		
Alert	Grave R. Antaly, Save	
Dynamic DNS		
SNMPD		
RemoteManager		
USR Cloud		
Base Station		
> VPN		
> Network		
> Firewall		
> WAN/LAN Port		
> DTU		
> System		
Logout		
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Figure 23. SNMPD

5.5. DDNS

DDNS function allows remote access to the router directly through the domain Item instead of your dynamic IP address, which changes from time to time.



5.5.1. Supported Services

If you are using the DNS service provider can be found in Services Provider drop-down box, please configure like

below:

USR IOT Communication Expert of Indu	atral 107	Be Honest, Do Best! ==
USR-G806s	Dynamic DNS	
> Status	Dynamic DNS allows that your router can be reached with a fixed hostname while having a dynamically changing IP address.	
✓ Services	Configuration	
Phtunnel Email	Enable 0 () If enabled to disabled, DONS will continue to take effect for a period of time. The specific length depends on the configuration of the service provider:	
Alert	Effective interface wan_wired Whetwork interface on which the ddm-updater scripts will come into effect	
SNMPD RemoteManager	Service Provider ddms.oray.com V ddms.oray.com dms.oray.nmic.org	
USR Cloud Base Station	Hostname esandus.com ecution Username myssername	
> VPN	Password #	
Network Firewall	IP Source interface G Get P address through this interface	
> WAN/LAN Port	Interface eth0.2 v	
> DTU > System	Check For Changed ID 10 Every	
Logout	Time Unit min 🗸	
	Force Update Every 72	
	Time Unit h	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Figure 24. Supported Services of DDNS

Item	Description	Default	
Enable	On/Off	Off	
Effective interface	lan/wan_wired/wan_4g	wan_wired	
Service Provider	DDNS server address	ddns.oray.com	
Hostname	Enter the hostname provided by the DDNS	mypersonaldomain.dyndns.or	
nostiume	server.	g	
Username	Enter the username provided by the DDNS	myusername	
	server		
Password	Enter the password provided by the DDNS	mypassword	
	server		
IP Source	Network/Interface/URL	Interface	
Interface	eth0.2/eth1	Eth0.2	
Check for changed	The interval at which IP address changes are		
IP every/unit	detected. The IP binding of the domain name	10 min	
	may change frequently, and the lower the		



value, the more frequent the detection.		
Force update	The time interval for forced undated	72 h
every/unit	The time intervation forced updates.	/211

5.5.2. Custom Services

If you are using the DNS service provider can not be found in **Service Provider** drop-down box, please select

"Custom", then configure like below:

USR IOT Communication Expert of Indu	INT Be Hone	st, Do Best!
USR-G806s	Dynamic DNS	Â
> Status	Dynamic DNS allows that your router can be reached with a fixed hostname while having a dynamically changing IP address.	
✓ Services	Configuration	
Phtunnel Email	Enable 🛛 👔 If enabled to disabled, DDNs will continue to take effect for a period of time. The specific length depends on the configuration of the service provider.	
SMS	Current DDNS IP Addr	
Alert	Effective interface wan_wired ~	
Dynamic DNS	Network interface on which the ddm-update scripts will come into effect	
SNMPD	Service Provider - custom -	
RemoteManager		
USR Cloud	Custom update-Urk	
Base Station	Hostname mypersonaldomain.ddns.oray	
> VPN	Username myusername	
> Network	Password ###	
Firewall	IP Source interface 🗸	
> WAN/LAN Port	Get IP address through this interface	
System	Interface eth0.2 V	
Logout	Check For Changed IP 10 Every	
	Time Unit min 🗸	
	Force Update Every 72	
	Time Unit h 🖌	
	Jinan USR IOT Technology Limited http://www.puss.com/	

Figure 25. Custom Services of DDNS

Here we use "ddns.oray.com" as an example, the hostname is "1a516r1619.iask.in", username is "ouclihuibin123", password "ouclihuibin123".

Item	Description	Default
Enable	On/Off	Off
Effective interface	lan/wan_wired/wan_4g	wan_wired
Service Provider	Custom	
Custom update-URL	DDNS server address, here we take	Example:
	"ddns.oray.com" as an example. Please enter with	http://ouclihuibin123
	the format of	:0
	"http://username:password@ddns.oray.com/ph/u	uclihuibin1231@ddns.
	pdate?hostname=hostname provided by the DDNS	oray.com/ph/update
	server"	?hostname=1a516r16



		19.iask.in
Hostname	Enter the hostname provided by the DDNS server	Example: 1a516r1619.iask.in
Username	Enter the username provided by the DDNS server	Example: ouclihuibin123
Password	Enter the password provided by the DDNS server	Example: ouclihuibin123
IP Source	Network/Interface/URL	Interface
Interface	eth0.2/eth1	eth0.2
Check for changed IP every/unit	The interval at which IP address changes are detected. The IP binding of the domain name may change frequently, and the lower the value, the more frequent the detection.	10 min
Force update every/unit	The time interval for forced updates.	72 h

Note:

>After setting all parameters, please restart the device to take the parameters effect.

>Dynamic domain names work even if the router is in subnet.

>DDNS + port forwarding can realize remote access to the router subnet.

>This function requires to assign a separate public IP to the router's network.

>Multiple DDNS domain names can be added to this router.

5.6. Remote Manager

After enable **Remote Firmware Upgrade** and **Remote Monitor** function in G806s device, you can add it in our remote management platform http://ycsj1.usriot.com/Public/login. Please register and submit your account to technical engineers for authorization before using it.



Communication Expert of Industri	Be Honest, Do Best!
USR-G806s Status Services Phrumel Email SMS Alert Dynamic DNS SNMPD RemoteManager USR Cloud Base Station VFN Network Firewall WAV/LAN Port DTU System Logout	RenceManager Rence firmmere: Configuration: Firemere Rence Address: Voil Lurict.com Verterval(seccords): Teterval(seccords):
	 A second sec second second sec

Figure 26. Remote upgrade

USR IOT Communication Expert of Indus	Be Honest, Do Best!
Communication topert of leader USR-G806s Status Status Services Phtumnel Email SMS Alert Dynamic DNS SNMPD RemoteManager USR Cloud Base Station VPN Network Firewall WMAVLAN Port	Image of the second
> DTU > System Logout	Jinan USR IOT Technology Limited http://www.pusr.com/

Figure 27. Remote Monitor

6. Serial device server function

USR-G806s supports DTU function, which can achieve RS485 serial data transmission.

6.1. Serial Port Settings

6.1.1. Basic Settings

Serial parameters of USR-G806s must be consistent with the RS485 serial device. Otherwise, they cannot



communicate with each other.

Communication Expert of Indus	atianor Be Honest, Do Best
Comunication Tepert of Inde USR-G806s Status Services VPN Network Firewall WAN/LAN Port Control Settings SocKET HTTPD System Logout	wardor Serial Port Settings The basic settings of serial port Configuration Baud Rate 1500 V Data Bits 0 V Stop Bits 1 V Pactaging Internal 0 Stop Bits Pactaging Internal 0 Stop Bits Some R.Agging Internal Stop Bits
	Jinan USR IOT Technology Limited http://www.pusr.com/

Figure 28. Basic settings

Гable 6.	Serial	port	parameters
----------	--------	------	------------

Item	Description	Default
Baud rate	Supports	115200
	1200/2400/4800/9600/19200/38400/57600/115200/23040	
	0	
Data bits	8	8
Stop bits	1 /2	1
Parity	NONE/ODD/EVEN	NONE
Packaging interval (ms)	10-60000	10
Packaging length(byte)	5-1500	1000

6.1.2. Framing Mechanism

6.1.2.1. Time Trigger

When G806s receives data from the UART, it continuously checks the interval of two adjacent bytes. If the interval time is greater or equal to a certain "time threshold", then a frame is considered finished, otherwise the data is received until greater or equal to the packet length byte set (Defaults to 1000 bytes). This frame is sent to the network as a TCP or UDP packet. The "time threshold" here is the time between packages. The range of settable is 10ms~60000ms.Factory default: 10ms.



This parameter can be set by AT command, AT+UARTFT=<time>.



6.1.2.2. Length Trigger

When G806s receives data from the UART, it constantly checks the number of bytes received. If the number of bytes received is equal to a certain "length threshold", a frame is considered to have ended, then this frame is sent to the network as a TCP or UDP packet. The "length threshold" here is the package length. The settable range is 5~1500 bytes. Factory default 1000.

This parameter can be set by AT command, AT+UARTFL=<length>.



6.2. Operating Mode

USR-G806s supports three operating modes: NET(Transparent transmission), MODBUS(MODBUS RTU to MODBUS

TCP), HTTPD(HTTP Client mode).

Communication Expert of Indu	atria lor Be Honest, Do Best!
Communication logor of look USR-G806s Status Services VPN Network Firewall WNN/LAN Port DTU General Settings SocKET HTTPD System Logout	exet do
	Jinan USR IOT Technology Limited http://www.pusr.com/





6.2.1. NET Mode

In this mode, user can achieve transparent data transmission between the serial device and the network server with simple parameter settings.

USR-G806s supports 4 socket connections, socket A~socket D, which are independent with each other.

Socket A supports TCP client/TCP server, UDP client/server, socket B/C/D supports TCP client, UDP client/server.

Here we connect the RS485 port to the computer via a serial to USB adaptor to test:

1.Set the operating mode to NET.

Communication Expert of Indu	amainor Be Honest, Do Best!
USR-G806s	DTU Setup
 Status Services VPN 	DTU General Configurations Configurations
Network Firewall WAN/LAN Port	Wetchool House HeartDate / Mogetty Model Type NET Restarting Without Data OFF
Ceneral Settings Serial Port Settings SOCKET	Same & Apply Save
HTTPD > System Logout	
	Jinan USR IOT Technology Limited http://www.pusr.com/

Figure 30. Set the operating mode

2.Set the serial port parameters.

Communication Expert of Indus	Ratisal or:	nest, Do Best!
USR-G806s Status Services VPN Network Firewall WAN/LAN Port OTU General Settings SockeT HTTPD System Logout	Serial Port Setting: The basis: setting: of serial port Configuration Baad Rate 115200 v Data Bits 0 patrixt Note v 0 0 0 0 0 0 0 0 Stop Bytes Stop Byte Stop Byte <th></th>	
	Jinan USR IOT Technology Limited http://www.pusr.com/	



Figure	31.	Serial	port settings
--------	-----	--------	---------------

3.Set the device to TCP client, server address to test.usr.cn, port 2317.

Communication Expert of Industrial IOT	Be Hond	est, Do Best!
USR-G806s Status Services VFN Network Firewall General Settings Serial Port Settings Serial Port Settings Serial Port Settings Logout	Sockal Settings Configuration Cockel Neuronts Cockel Neuronts Socket Neuronts Cockel Neuronts Nutront Neuronts Cockel Neuronts Nutront Neuronts Cockel Neuronts Nutront Neuronts Nutronts Nutront Neuronts Cockel Neuronts Nutront Neuronts Nutronts Nutronts Nutronts	
	Jinan USR IOT Technology Limited http://www.pusr.com/	

Figure 32. TCP Client

4.After setting all parameters, restart the device to take the parameters effect.

USR IOT Communication Expert of Indu	amilior Be Honest, Do Best!
USR-G806s	Reboot
> Status	Restart the operating system of the device.
> Services	Reboot The Device
> VPN	
> Network	S Reboot
> Firewall	
> WAN/LAN Port	
> DTU	
∽ System	
Administration	
Reboot Scheduler	
Backup/Upgrade	
Reboot	
Logout	
	Jinan USR IOT Technology Limited http://www.pusr.com/

5. After the device restarts, when we send data from the serial port, will receive the same data replied by the test

server.



· ·	ConnUart /	Assistant		- D >
COM Settings	Data receive			SAVAGE V4.2.1
PortNum COM15 🖃	【2021-04-28 12:10:24:019】	12345678		
BaudR 115200 -				
DPaity NONE -				
DataB 8. 💌				
StopB 1				
· Close				
Recv Options				
TReceive to file				
🔽 Auto linefeed				
☑ Show timestamp				
Receive as hex				
l'ause receive				
<u>Save</u> <u>Clear</u>				
Send Options				
🗖 Data from file				
🦵 Auto checksum				
🥅 Auto clear input			2222777 212	
🔽 Send as hex	1.DCD • 2.RXD • 3.TXD •	4.DTR • 5.GND •	6.DSR • <u>7.R</u>	<u>TS</u>
Period 20 ms Load <u>Clear</u>	12345678			Send
👉 Ready!	·	Send :	8 Re	cv:8 Reset

6.2.2. Modbus Mode

In this mode, USR-G806s can achieve bidirectional protocol conversion between serial MODBUS RTU data and network MODBUS TCP data.

MODBUS mode supports 4 socket connections, which are independent with each other.

Socket A supports TCP client/server, socket B/C/D only supports TCP client.

6.2.3. HTTPD Mode

In this mode, user's serial device can send request data to the HTTP server. USR-G806s will resolve the server data then send to serial device. It will remove the HTTP header of the server data by default, users can set whether to enable this function via AT commands.



Communication Expert of Industrial IOT		Be Honest, Do Best!
USR-G806s Status Services VPN Network Firewall WAN/LAN Port General Settings SocKET HTTPD System Logout	DTU Serval Configurations Configurations Textor formal Selar free theats Model registry Model Uppe HITPD Restarting Without Data OFF	
USR 10T Communication Expert of Industrial (07 USR-G806s	Jinan USR IOT Technology Limited http://www.pusr.com/ HTTPD Settings	Be Honest, Do Best!
Status Services VPN Network Firewall WAAV/AN Port OTU General Settings SockET HTTPD System Lensut	HTDD Basic Settings Configuration Request Method GET Remove Header ON HTTP URL 1.4.php(3F) Server Address test.cn Remove Fort 80 Timeou 10 Httpd Header Accept:text/html(00)[0A]	
Logout	Save & Apply Save	

6.3. General Function

6.3.1. Registry Packet

Registry packet is intended to allow the server to identify the data from which device or to use it as a password to obtain authorization for the server's functions. Registry packet can be sent when the module establishes a connection with the server, or be added as the prefix of each data package. Registry packet data can be ICCID code, IMEI code, or User-defined data.



Communication Expert of Industrial IOT		Be Honest, Do Best
USR-G806s	DTU Setup	
> Status	DTU General Configurations	
Services	Configurations	
VPN	Protocol Format Select Heartbeat Packet Registry Packet	
> Network		
> Firewall		
 DTU 	iype user-Denned	
General Settings	User-Defined Packet O123455789 OChoose custom is effective The allowed characters are: A-F, a-f, 0-9, hex data, even bit	
Serial Port Settings	Registry Packet Contained After Connection	
SOCKET	In	
HTTPD		
System	Save & Apply Save	
Logout		

Item	Description	Default
Enable	ON/OFF	OFF
Туре	IMEI, ICCID, USR Cloud, User-Defined	User-Defined
User-Defined	A-F, a-f, 0-9, hex data, even bit	0123456789
packet		
Cloud ID	Registry packet parameters of USR Cloud	SN code
Cloud psw	Registry packet parameters of USR Cloud	12345678
Registry packet	After connection: Send once when establish a connection with	After connection
contained in	the server.	
	Prefix of data: Registry packet is added as the prefix of each	
	data packet.	

Note: Registry packet is only valid in TCPC, UDPC mode.

6.3.2. Heartbeat Packet

Heartbeat package can be sent to the network or serial port device. G806s defaults to send to the network to keep the connection stable and reliable.



Communication Expert of Industrial	lor Be Hor	nest, Do Best!
USR-G806s	DTU Setup DTU General Configurations	
> Services > VPN	Configurations Protocol Format Select. Heartbeat Packet Registry Packet	
Network Firewall WAN/LAN Port	Enable OFF True Network Heartbeat Parket	
DTU General Settings	User-Defined Packet 0123455789 Choose custom is effective The allowed characters are: AFF, b-F, 0-9, hex data, even bit	
Serial Port Settings SOCKET HTTPD	Heartbeat Interval 3 1-6000 Seconds 1-6000 Seconds	
> System Logout	Save & Apply Save	

Jinan USR IOT Technology Limited http://www.pusr.com/

Item	Description	Default
Enable	ON/OFF	OFF
Туре	Serial heartbeat packet/Network heartbeat packet	Network heartbeat packet
User-defined packet	A-F, a-f, 0-9, hex data, even bit	0123456789
Heartbeat interval (s)	1-6000s	3

Note: Heartbeat packet is only valid in TCPC, UDPC mode.

6.3.3. Restarting without Data

This function defaults to be disabled. When it is enabled, the device can actively disconnect the connection with the server and reconnect when there is no data from network side within the reconnect detection interval, which can prevent pseudo-connection due to an abnormal socket disconnection.

When the time reaches the restart detection interval, the device will restart automatically to recover the connection.



USR IOT Communication Expert of Ind	Be Honest, Do Best!
USR-G806s Services Services VPN Network Firewall WARVLAN Port U General Settings SocKET HTTPD System Logout	DTU Seeral Configurations Configurations Totaced researt Selfs Second Researt Selfs
	Revenue COLOT Tarakan Land Land Land Land Land Land Land La



6.3.4. RFC2217



This function is similar to RFC2217, when we send the specific protocol data from the network side, can change the serial parameters in real time. Parameters take effect immediately, but it will be restored to the original after restarting.

Protocol description:

The protocol length is 8 bytes in HEX:

Item	Header	Baud rate	Bit	Parity
Bytes	3	3	1	1
Description	3 bytes reduce	A baud rate	Please check below	Parity of the
Description	misjudgment	value, high first	table	first four digits,



				ignoring carry.
Example:	55 00 55	01 62 00	00	16
(115200,N,8,1)		01 22 00	60	40
Example:		00.25.80	02	20
(9600,N,8,1)		00 2 3 00	60	20

Bit	Description	Value	Description
1:0	Data bit	00	5
		01	6
		10	7
		11	8
2	Stop bit	0	1
		1	2
3	Parity	0	Disable
		1	Enable
5:4	Parity type	00	ODD
		01	EVEN
		10	Mark
7:6	NC	00	0

Note: This function needs to be enabled via AT command: AT+RFCEN.

7. PUSR Cloud

For the details of connecting USR-G806s to our PUSR Cloud, please refer to our another manual: **<u>Remote</u> Management of USR Router**

8. GNSS service

The USR-G806s-G features real-time GNSS positioning capabilities, uploading data in Modbus RTU to PUSR cloud, or reporting positioning data to private servers in format of GPGGA or GPRMC.



USR-G806s Configuration			
GNSS Enable			
Status Position Type	GNSS CUSTOM		
Phtunnel Network Operating Mode			
Email Operating Mode	TCPC V		
SMS Alort Server Address	test.usr.cn		
Dynamic DNS Server Port	2317		
SNMPD Reg Enable	OFF V	,	
USR Cloud Heart Pkt	OFF V		
RemoteManager GNSS Heart Type	USR POSITION MODBUS		
GNSS Modbus Device ID	1		
Base Station Modbus Register Address	0		
Network Upload Interval VPN	30		
> DTU	• 1 0000 3000 ma(a)		
> WAN/LAN Port			
> Firewall		Save & Apply Save	ive
Logout			

GNSS Configuration Interface

GNSS Parameter Table

Item	Description Default	
Enable	On/Off	Off
Position Type	Osition Type GNSS CUSTOM: reporting positioning data to private servers	
	USR CLOUD: reporting positioning data to PUSR cloud	
Network Operating Mode	INDE: reporting positioning data via independent SOCKET	INDE
	MULT: reporting positioning data via the socket of DTU	
Operating Mode	When the Network Operating Mode is INDE mode, this mode need be set:	ТСРС
	TCPC: Connect to server as TCP client	
	TCPS: Wait for client connection as TCP server, supports up to 8 client connections	5
Server Address	IP address or domain name of the server to which the client is to connect	test.usr.cn
Server Port	Port number listened by the server	2317
Reg Enable	ON/OFF	OFF
Reg Type	IMEI/SN/ICCID/IMSI/User-defined supported.	User-defined
	User-defined: Users can customize the contents of the registration package.	


Reg Packet	A-F, a-f, 0-9, hex data, even bit	7777772E7573722E636
Heart Pkt	ON/OFF	OFF
		OFF
User-Defined Heart Packet	A-F, a-f, 0-9, hex data, even bit	123456
Heartbeat Interval	Unit: second	30
	Range: 1~6000	
GNSS Heart Type	USR POSITION MODBUS: Modbus format	USR POSITION MODBUS
	NMEA GPGGA: GPGGA format	
	NMEA GPRMC: GPRMC format	
Modbus Device ID	Slave ID set on PUSR cloud	1
Modbus Register Address	Starting register address set on PUSR cloud	0
Upload Interval	Unit: second	30
	Range: 1~6000	
Cloud id	The device ID set on PUSR cloud	NULL
Cloud psw	Password set on PUSR cloud	NULL

Note:

- If no SIM card is inserted, and GNSS configuration is required to capture device GNSS information, make sure to check "LTE module prohibits reset" in Network -> APN Settings.
- > The PUSR format includes both GPS and base station positioning information, with GPS positioning taking priority.

8.1. Positioning Operation Instructions of PUSR

8.1.1. Settings of PUSR

PUSR cloud address: https://account.usriot.com/#/login, if you haven't used the PUSR Cloud platform before, please register first.



Add gateway device.

*	USR Cloud Cons www.usr.cn	sole	IoT DM							💭 service support 🕞 use	er rights 🚯 简体中文	Iiumeimei@usr.cn
	Quick start	Gateway	y management > Ga	ateway list								
8	Screen ~ management	Gatew	av list	Total Gateways	Online gateway	Offline gateway			O More gate	way features Go to DM platform	Add Batch A	dd Delete
	Scene 🗸			1	0	1				L		
69	Device 🗸	Pleas		Please select gatewar	All models	Pelase Choose lags	Please enter SN or g	uery				
⋳	Gateway ^ management		Gateway status	Gateway name		SN	Gateway model	Number of associa ted devices	Belonging organize	Tag	Operation	
	Gateway list		Offline	USR-G816		01301622060700001586	USR-G816	0	My Project		View Edit	Delete More
品	Configuration management	-								Tabl		
ш	Data center 🛛 🎽									Totar 1 T0/page ~	Pre Next	30 10 1
ä	Alarm linkage $~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~$											
8	Value-Added 🗸 services											
Ē	Exclusive ~ configuration											
88	Extend ~											

Add gateway with SN and password. Users can edit the password by themselves, the password must be 8

characters.

*	USR Cloud Cons	ole lot DM		🛱 service support	user rights	③ 简体中文
	Quick start	Gateway management	> Gateway list > Add Gateway			
8	Screen 、 management	Add Gateway				
	Scene v management					
69	Device ~ management	* Gateway name	USR-G806s-GPS			
Ø	Gateway ^ management	* Belonging organize	My Project \checkmark			
	Gateway list	*SN 🎯	Please Input SN SN does not support, click here			
品	Configuration 🗸 management					
ш	Data center 🛛 🗡	* MAC / IMEI	Please Input MAC/IMEI/NID number			
畄	Alarm linkage 💙	Positioning method	Manual positioning Automatic positioning			
8	Value-Added 😞 services	Gateway address	Мар			
Ēh	Exclusive configuration	Tag 🔘	Add tags			
88	Extend ~					
		Network Detwork				
		USR transparency 🔘				
			Save			





Add gateway successfully.

*		sole IDT DM						🛱 service support 🛛 us	er rights 🚯 简体中文 🌔 liurneimei@usr.ci
×	Quick start	Gateway management) Gate	way list						
8	Screen	outing mangement / out	Total Gateways • Online gal	eway • Offline gateway				unu fashuas Os is DM sistfarr	Add Patch Add Dalata
Ø	Scene ~ management	Gateway list	2 0	2			U more gain	way realizes Go to Dw platform	Aud Batch Aud Delete
69	Device	Please select organiz [~]	Please select gatewar All mc	dels V Pelase Choose tags N	Please enter SN or g	Query			
æ	Gateway	Gateway status	Gateway name	SN	Gateway model	Number of associa ted devices	Belonging organize	Tag	Operation
	Gateway list	Waiting for the initia	II USR-G806s-GPS	00007647000000000001	Unknown type	0	My Project		View Edit Delete More
品	Configuration management	Offline	USR-G816	01301622060700001586	USR-G816	0	My Project		View Edit Delete More
ш	Data center 🛛 🗡							7.412	
ä	Alarm linkage 💙							Iotai 2 10/page V	Pre Next Goto 1
	Maluo Addod								

Add device template.

*	USR Cloud Cons www.usr.cn	DM						💭 service support	user rights	简体中文 简体中文	[] liumeimei@i
8	Quick start	Device management > Device Template									
፼	Screen	Device Template								Add	Bulk Deletion
ତ	Scene v management	Please select orga 🔗 Please input temp	Query								
65	Device ^	Template Name	Belonging organize	Total number of variables	Number of associated devices	Acquisition methods	Update time		Operation		
	Device List										
	Device Template										
~	Gateway management					×					
岙	Configuration ~ management										
ш	Data center 🛛 🗡				, H = 1						
岜	Alarm linkage 🗸 🗸				No data						
8	Value-Added 🗸 services										
₽	Exclusive ~										



	Quick start	Device management > Device Template > Add device template
8	Screen 、 management	Add Device template
	Scene ~ management	Template Information State configuration
65	Device ^ management	* Template Positioning template State O Gateway O Equipment data
	Device List	Name judgment
	Device Template	* Belonging My Project Sharing by
2	Gateway 🗸 🗸 🗸	organize subordinate
品	Configuration	organizations * Acquisition The cloud polling dege computing
ш	Data center 🛛 👻	methods
ä	Alarm linkage $~~$	
\otimes	Value-Added 🗸	Data Nodes list
≞	Exclusive configuration	* Protocols Modbus: /PLC / DL/Modbus:/Modbus:RTU Advanced Options and drivers
88	Extend ~	Add variable Import variable Sequence Query
		Number Variable name Variable Type Value Type Register Write&Read Storage Mode Operation

Add variable

*	USR Cloud Cons www.usr.cn	DM DM			🛱 service support 🗟 user rights 🔞 简体
		Device management > Device Template > Edit Device Templates			
	Screen 、 management	Edit Device template			
	Scene 🗸	* Template Positioning template	Add variable	×	
	Device	Name	* Variable name Position data Variable Please enter varia	Gateway	C Equipment data
		* Belonging My Project · · · · · · · · · · · · · · · · · · ·	* Variable Type Directly collected variables		
	Gateway 🗸	* Acquisition The cloud polling	Variable identifier		
	Configuration management	methods	Register 4 V 1 40001(30bytes-location)		
		Data Nodes list	* Data format 30bytes-location ~		Whether to enable mul
	Alarm linkage V	* Protocols Modbus / PLC / DL/Modbus/Modbus RTU	* Collection Do not collect (report voluntarily)		
	services		Frequency		
	Exclusive configuration	Add variable Import variable Export vari	b * Storage Type 🥑 All Storage		All variables V Please Input variable nam
		Number Variable name Variabl	* Read/write O Write&Read O Read Only O Write Only	orage Mode	Operation
			Advanced Options ~		
			How to set variable permissions, click to view details		
			Cancel		
			A CONTRACTOR OF		

Add device





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* '	USR Cloud Cons	ole IDT DM	🗭 service support	user rights	⑦ 简体
	Quick start	Device management > Device List > Add device			
3	Screen	Add Device			
	Scene v management	Basic Information			
53	Device ^	* Device name Vehicle-1 Position Upload Pictures			
	Device List Device Template	* Belonging organize My Project V File			
Ø	Gateway	Device description Public Bus#1 Only support JPG, GIF, PNG format, the size of 5M or less			
岙	Configuration	Device location Add tags Device Tags Add tags A			
Ш	Data center 🛛 🗠	Served my Seal xe, mail 3m, shallong 2.5 Record release			
ä	Alarm linkage 🛛 🗡	Data Settings			
8	Value-Added vertices	Associated Devic Positioning template Delete Choose a template			
₽	Exclusive ~ configuration	Template			
88	Extend ~	* uart number 1 * slave number 1			
		Networking settings			
		Associated Gateway USR-G8065-GPS O Add Gateway			
		Save			

8.1.2. Settings of USR-G806s

Enable the GNSS function, and set the right parameters like the following picture, then click "save and apply" to make the changed settings take effect.

▲ USR-G806s	GNCS Configuration	
	Configuration	
> Status	conngaration	
✓ Services	GNSS Enable	
Phtunnel	Position Type	USR CLOUD
Email	Cloud id	0000764700000000000000
S	Cloud la	
ert	Cloud psw	admin000
ynamic DNS	Modbus Device ID	1
1PD	Modbus Register Address	0
Cloud	Upload Interval	5
	(1) The state of the second	1-6000 second(s)
lanager	L	
n		
ark		



×	USR Cloud www.usi	Cons .cn	ole Iot DN	4					💭 service supp
×	Quick start		Gateway management	> Gateway list > Gateway Details	3				
፼	Screen management	~	Gateway Details	Network debugging	Positioning Track 🔘				
9	Scene management	~	Gateway infomatio	n					
63	Device management	~	,						
2	Gateway management	^		1. 000076470000000000	001				
	Gateway list			Belonging organize: N	Ay Project		Gateway mod	el: Unknown type	
品	Configuration management	×		2. Communication Passv Gateway address: 北京	word: admin000 © 『市东城区中华路甲10号		MAC: IMEI:	-	
ш	Data center	~		Tag:			NID:	-	
Ľ	Alarm linkage	~		GNSS Configuration			Ermusre Var	rion.	
\otimes	services	Ý	Gateway traffic	Conliguration					
≞	Exclusive configuration	~	③ 2024-03-	GNSS Enable	•				
88	Extend	~		Position Type	USR CLOUD	¥			
			Bytes/kb	1. Cloud id 2. Cloud psw Modbus Device ID Modbus Register Address	1				
				Upload Interval	5 3 1-6000 second(s)				

We can find that the gateway is online on PUSR.

ጵ	USR Cloud Cons www.usr.cn	SOLE IOT DM						🛱 service support 🧔 u	iser rights 👩 简体中文 🕕 liumeimei@
	Quick start	Gateway management > G	ateway list						
8	Screen	Gateway list	Total Gateways • Online gateway	Offline gateway			Ø More gates	vay features Go to DM platform	Add Batch Add Delete
	Scene		2 1	1					
63	Device ~ management		Please select gatewar All models	Pelase Choose tags	Please enter SN or g Que	ry			
Ø	Gateway	Gateway status	Gateway name	SN	Gateway model	Number of associa ted devices	Belonging organize	Tag	Operation
	Gateway list	Online	USR-G806s-GPS	00007647000000000001	Unknown type	1	My Project		View Edit Delete More
品	Configuration ~ management	Offline	USR-G816	01301622060700001586	USR-G816	0	My Project		View Edit Delete More
Ш	Data center 🛛 🗡							Total 2 10 (see a	Des d Next Oats 1
ä	Alarm linkage $~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~$							Total 2 To/page	Pre Next Gold 1

8.1.3. Check the position data

Device management->Device list->View, user can check the positioning track.

*	USR Cloud Co www.usr.cn	nsole	IoT	DM								🛱 service support	user rights	③ 简体中文	🚺 liumeimei@usr
8	Quick start	Dev	ice managem	ient 🗧 Devici	e List										
13	Screen v management	De	vice List						Add Device	Batch Add	Bulk Deletion	Batch associ	ate gateway	Sequence	± Export
G	Scene ~ management ~		lease select	orga 🗸	All status 🗸 🗸	Pelase Choose tags ~ Please	Input Device I Quer	y							
69	Device ^ management		Device	e status	Device Name	Serial number	Belonging organize	Gateway		Device temple	ate	Tag	Oper	ation	
	Device List		• Onlir	10	Vehicle-1 Position	000007647000001	My Project	USR-G806s-GPS		Positioning ter	mplate		View	Edit Confi	guration Delete
	Device Template	-					1			č	5.			_	
~	Gateway ~											Total 1 10/pag	e ~ Pre	1 Next 0	Go to 1



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And users can also check the original data on "Data Debugging" page.

*	USR Cloud Con www.usr.cn	sole Int DM	🛱 service support	user rights	③ 简体中文	🔘 liumeimei@usr.cn
	Quick start	Gateway management > Gateway list. > Gateway Details				
⊠	Screen ~ management	Gateway Details Network debugging Positioning Track				
	Scene	Data log: 🗹 timestamp 🔽 HEX				
65	Device 🗸 🗸	0146000001122100000000000000000000000000				
2	Gateway	7.03.27)				
	Gateway list	D145000000114509 (2024-03-27 17:03:27)				
品	Configuration 🗸 management					
Ш	Data center 🛛 🗡					
ä	Alarm linkage $~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~$	empty				
8	Value-Added 🗸 services	RX: 43 TX: 8 Reset count				
Ēh	Exclusive configuration	Please Input				
88	Extend ~					
		Send				
		HEX Cycle period Please Input S callBack				
E	V6.1.5					

8.1.4. Description of GPS data

GPS data in Modbus RTU: When the gps sensor is abnormal and cannot locate the coordinate information, the latitude and longitude in the frame is (0.00, 0.00).

The G806s automatically reports the GPS data to the server, and the reported data type is the standard Modbus RTU protocol format. For example:

01 46 00 00 01 11 24 00 06 00 01 68 90 E7 27 48 C9 40 5D C4 FD 85 AA 56 7E 40 42 01 CC 00 00 00 64 00 00 F2 59 5C 87 13 56 2D 2E Longitude--68 90 E7 27 48 C9 40 5D Latitude--C4 FD 85 AA 56 7E 40 42



Base station location(10 bytes)--01 CC 00 00 00 64 00 00 F2 59

Timestamp--5C 87 13 56

CRC--CRC check

8.2. Reporting data to private server

Enable a TCP Server 192.168.1.136:8433 on the LAN. Set USR-G806s report data to server in NMEA GPRMC. After

changing the parameters, click "Save & Apply" to make the changing settings to take effect.

USR-G806s	GNSS Configuration		
	Configuration		
 Status Services 			
Phtunnel	GNSS Enable		
Email	Position Type	GNSS CUSTOM	
SMS	Network Operating Mode		
Alert		WOLT function only supports the use of DTO NET mode	
Dynamic DNS	Operating Mode	TCPC Y	
SNMPD	Server Address	192.168.1.136	
USR Cloud	Server Port	8433	
SSH	Reg Enable	OFF 🗸	
RemoteManager	Heart Pkt	OFF 🗸	
GNSS	CNSS Heart Type		
Base Station	GNOS Heart type		
> Network	Upload Interval	5 (a) 1-6000 second(s)	
> VPN			
> DTU			
WAN/LAN FOIL		Save & Apply Sa	ve
Firewall			
> Firewall			
> Firewall	Net	work Assistant	₩ - □ ×
Settings	Net	work Assistant	- □ × <u>NetAssist V5.0.2</u> ♀ ♀
Settings (1) Protocol	Data log	work Assistant	→
Settings (1) Protocol TCP Server	Net Data log [2024-03-27 18:18:34.934]# Client 192.10	work Assistant 38.1.1:59429 gets online.	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr	Net Data log [2024-03-27 18:18:34.934]# Client 192.16 [2024-03-27 18:18:36 396]# RECV ASCTL F	work Assistant 38.1.1:59429 gets online. 30M 192 168 1 1 :59429)	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136	Data log [2024-03-27 18:18:34.934]# Client 192.16 [2024-03-27 18:18:36.396]# RECV ASCII F) \$GFNMMC, 093401.00, A, 3639.969605, N, 11705.5	work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 369182, E, O. 0, 148.2, 190821, 5.4, W, A*20	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port	Data log [2024-03-27 18:18:34.934]# Client 192.10 [2024-03-27 18:18:36.396]# RECV ASCII FI \$GPNMC, 093401.00, A, 3639.969605, N, 11705.5	work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 969182, E, O. O, 148.2, 190821, 5.4, W, A*20	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII F1 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.5 [2024-03-27 18:18:41.105]# RECV ASCII F1	work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 969182,E,0.0,148.2,190821,5.4,W,A*20	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 ••••• Close	Data log [2024-03-27 18:18:34.934]# Client 192.16 [2024-03-27 18:18:36.396]# RECV ASCII F) \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 [2024-03-27 18:18:41.105]# RECV ASCII F) \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9	work Assistant 88.1.1:59429 gets online. 80M 192.168.1.1 :59429> 969182, E, O. O, 148.2, 190821, 5.4, W, A*20 80M 192.168.1.1 :59429> 969266, E, O. O, 148, 2, 190821, 5.4, W, A*28	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Close	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII FI \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 [2024-03-27 18:18:41.105]# RECV ASCII FI \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9	work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 969182, E, O. O, 148.2, 190821, 5.4, W, A*20 30M 192.168.1.1 :59429> 969266, E, O. O, 148, 2, 190821, 5.4, W, A*28	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr (3) Local Host Port 8433 Conse Recv Options	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII F1 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.5 [2024-03-27 18:18:41.105]# RECV ASCII F1 \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.5 [2024-03-27 18:18:41.105]# RECV ASCII F1 \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.5 [2024-03-27 18:20:46.784]# RECV ASCII F1	<pre>work Assistant 38.1.1:59429 gets online. 30.00 192.168.1.1 :59429> 30.00 192.168.1.1 :59429> 30.00 192.168.1.1 :59429> 30.00 192.168.1.1 :59429> 30.00 192.168.1.1 :59421> 30.00 192.168.1.1 :59481></pre>	- □ × <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Close Recv Options Close Recv Options Check Addr (1) Protocol	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII F) \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9	<pre>work Assistant 88.1.1:59429 gets online. 80M 192.168.1.1 :59429> 969182, E, 0.0, 148.2, 190821, 5.4, W, A*20 80M 192.168.1.1 :59429> 969266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 80M 192.168.1.1 :59481> 967620, E, 0.0, 141.6, 190821, 5.4, W, A*2A</pre>	<u>→</u> <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Close Recv Options Close Recv Options Close Log Display Mode	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII FI \$GFNMC, 093401.00, A, 3639.969605, N, 11705.9 [2024-03-27 18:18:41.105]# RECV ASCII FI \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 [2024-03-27 18:20:46.784]# RECV ASCII FI \$GPRMC, 093501.00, A, 3639.959968, N, 11705.9	<pre>work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 969182, E, 0.0, 148.2, 190821, 5.4, W, A*20 30M 192.168.1.1 :59429> 969266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 30M 192.168.1.1 :59481> 967620, E, 0.0, 141.6, 190821, 5.4, W, A*2A</pre>	<u>→</u> <u>NetAssist V5.0.2</u> ^
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Control Close Recv Options ASCII CHEX I Log Display Mode Auto Linefeed	Data log [2024-03-27 18:18:34.934]# Client 192.16 [2024-03-27 18:18:36.396]# RECV ASCII FI \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 [2024-03-27 18:18:41.105]# RECV ASCII FI \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 [2024-03-27 18:20:46.784]# RECV ASCII FI \$GPRMC, 093501.00, A, 3639.959968, N, 11705.9 [2024-03-27 18:20:51.558]# RECV ASCII FI	<pre>work Assistant 38.1.1:59429 gets online. 30.00 192.168.1.1 :59429> 369182, E, 0.0, 148.2, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59429> 369266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 30.00 192.168.1.1 :59481> 367620, E, 0.0, 141.6, 190821, 5.4, W, A*2A 30.00 192.168.1.1 :59481> 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.1.1 :59481 30.00 192.168.10 192.168.1.1 :59481 30.00 192.168.10 192.10 192.10 192.100 192.1</pre>	<u>→</u> <u>NetAssist V5.0.2</u> ^
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Close Recv Options ASCII CHEX Log Display Mode Auto Linefeed Hide Received Data	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII F) \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 \$GPRMC, 093501.00, A, 3639.959968, N, 11705.9 \$GPRMC, 093501.00, A, 3639.963005, N, 11705.9 \$GPRMC, 093531.00, A, 3639.963005, N, 11705.9	<pre>work Assistant 88.1.1:59429 gets online. 80M 192.168.1.1 :59429) 969182, E, 0.0, 148.2, 190821, 5.4, W, A*20 80M 192.168.1.1 :59429) 969266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 80M 192.168.1.1 :59481) 967620, E, 0.0, 141.6, 190821, 5.4, W, A*2A 80M 192.168.1.1 :59481) 968283, E, 0.0, 141.6, 190821, 5.4, W, A*20</pre>	<u>→</u> <u>NetAssist V5.0.2</u>
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Port 8433 Close Recv Options Close Recv Options Close Recv Options ASCII C HEX Log Display Mode Auto Linefeed Hide Received Data Save Recv to File	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII FI \$GFNMC, 093401.00, A, 3639.969605, N, 11705.9 [2024-03-27 18:18:41.105]# RECV ASCII FI \$GPRMC, 093431.00, A, 3639, 969735, N, 11705.9 [2024-03-27 18:20:46.784]# RECV ASCII FI \$GPRMC, 093431.00, A, 3639, 959968, N, 11705.9 [2024-03-27 18:20:46.784]# RECV ASCII FI \$GPRMC, 093501.00, A, 3639.959968, N, 11705.9 \$GPRMC, 093531.00, A, 3639.963005, N, 11705.9	<pre>work Assistant 38.1.1:59429 gets online. 30M 192.168.1.1 :59429> 969182, E, 0.0, 148.2, 190821, 5.4, W, A*20 30M 192.168.1.1 :59429> 969266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 30M 192.168.1.1 :59481> 967620, E, 0.0, 141.6, 190821, 5.4, W, A*2A 30M 192.168.1.1 :59481> 968283, E, 0.0, 141.6, 190821, 5.4, W, A*20</pre>	<u>→</u> <u>NetAssist V5.0.2</u> ^
Settings (1) Protocol TCP Server (2) Local Host Addr 192.168.1.136 (3) Local Host Pott 8433 Close Recv Options ASCII CHEX Close Recv Options ASCII CHEX Log Display Mode Atuc Linefeed Hide Received Data Save Recv to File AutoSoroll Clear	Data log [2024-03-27 18:18:34.934]# Client 192.14 [2024-03-27 18:18:36.396]# RECV ASCII F1 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093401.00, A, 3639.969605, N, 11705.9 \$GPNMC, 093431.00, A, 3639.969735, N, 11705.9 \$GPRMC, 093431.00, A, 3639.969735, N, 11705.9 \$GPRMC, 093501.00, A, 3639.959968, N, 11705.9 \$GPRMC, 093531.00, A, 3639.963005, N, 11705.9 \$GPRMC, 093531.00, A, 3639.963005, N, 11705.9 \$GPRMC, 093531.00, A, 3639.963005, N, 11705.9	<pre>work Assistant 38.1.1:59429 gets online. 30.00 192.168.1.1 :59429) 369182, E, 0.0, 148.2, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59429) 369266, E, 0.0, 148, 2, 190821, 5.4, W, A*28 30.00 192.168.1.1 :59481) 367620, E, 0.0, 141.6, 190821, 5.4, W, A*2A 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 368283, E, 0.0, 141.6, 190821, 5.4, W, A*20 30.00 192.168.1.1 :59481) 30.00 192.168.1.1 :59481] 30.00 192.168.1.1 :59481] 30.00 192.168.1.1 :59481] 30.00 192.168.1.1 :59481] 30.00 192.168.1.1 :59481] 30.00 192.168.1.1 :59481] 30.00 192.168.10 192.168.10 192.168.10 192.168.10 192.168.10 192.168.10 192.168.10 192.168.10 192.168.10 192.175.175.175.175.175.175.175.175.175.</pre>	<u>→</u> <u>NetAssist V5.0.2</u> ^
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Note:



- The network channel can choose to multiplex the DTU channel. If you want to simultaneously send GPS data to multiple servers, you can choose to multiplex the DTU channel and activate multiple sockets to transmit GPS data.
- > Note: When GNSS uses DTU multiplexing, only transparent mode is effective.
- > When GNSS multiplexes DTU and operates in TCPS mode, it can connect to a maximum of 8 clients.
- When using DTU socket multiplexing: Reporting time (reports are sent on time, regardless of DTU data transmission/reception).
- > When using DTU socket multiplexing: Location packets can be sent to the serial port or network end.
- When using DTU socket multiplexing: When regular heartbeat packets and location heartbeat packets coexist, location heartbeat packets have higher priority.

9. AT Commands

9.1. AT Command Mode

When the device works in network transparent mode or HTTP mode, can switch to "AT command mode" by sending time-specific data by serial port. When the operation is completed in "AT command mode", send specific commands to return to the previous working mode.



Toggles the timing of command mode:

In the figure above, the horizontal axis is time, data above the time axis is sent by the serial device to G806s, data below the time axis is sent by G806s to the serial port.

Time requirement:

- T1 > current serial port packaging interval
- T2 < current serial port packaging interval time
- T3 < current serial port packaging interval time
- T4 = current serial port packaging interval time



T5 < 3 s

T6 = current serial port packaging interval time

The time sequence of switching from transparent mode/HTTP mode to "AT Command mode" :

1.Serial device continuously sends "+++" to the device. After receiving "+++", the device will send an "a" to the

serial device. No data can be sent during a packaging cycle before sending "+++".

2.When the serial device receives "a", a "a" must be sent to the device within 3 seconds.

3. After receiving 'a', the device returns "+ok" and enter "temporary command mode".

4.After receiving "+ok", the device has enter "temporary command mode" and now can send AT command to it.

Time sequence of switching from AT command mode to transparent mode.HTTP mode:

1.Serial device sends "AT+ENTM" to G806s.

2.After receiving the command, sends "OK" to the serial device and returns to the previous working mode.

3. After the serial device receives "OK", it knows that the device has returned to its previous working mode.

9.2. Serial AT Commands

In transparent mode, do not need to switch to the command mode, we can use "Command password + AT command" to query and set parameters. It does not need complicated "+++" timing sequence to enter AT command mode, so as to quickly query or set parameters.

Before sending, enter AT command mode, query the command password firstly. It defaults to "test.cn#". Restart the device after setting.

🔮 USR-TCP232-Test RS	232 to Ethernet Conve	ert tester			- 🗆 🗙
USR-TCP232-Test RS File(F) Options(O) Hele COMSettings PortNum COM45 BaudR 115200 DPaity NONE DPaity NONE DataB 8 bit StopB 1 bit	232 to Ethernet Conve b(H) COM port data receive: at other *ERR:1 AT +CADPW *CMDFW:test.on#	ert tester	Network data receive		 - □ × NetSettings (1) Protocol TCP Server ▼ (2) Local host IP (3) Local host pot (3) Local host pot (9999) (3) Listening Receive to file Add line return Receive to file Add line return Receive As HEX Receive Pause Save Clear
Send Options Data from file Auto Checksum Auto Clear Input Send As Mex Send Recycle Interval 1000 ms Load Clear	AT+CMDPW	↑ ♥ Send	http://en.usr.on	Send	Send Options Data from file Auto Checksum Auto Clear Input Send As Mex Send Recycle Interval 1000 ms Load Clear
if Ready!	Send: 79	Recv: 51 Rese	t jær Ready!	Send:0	Recv: 0 Reset

Send "test.cn#AT+MAC" from the serial port (there is an "Enter" after the command), then can receive the



response from the device:

COMSettings	COM port data receive			Network data receive		NetSettings
PortNum COM45 - BaudR 115200 - DPaity NONE - DataB 8 bit - StopB 1 bit - Close Recv Options Receive to file Add line return Receive As HEX Receive As HEX Receive Pause Save Clear Send Options Data from file Auto Checksum Auto Clear Input	at OK +++ +ER:1 AT ~UDDFW -UDDFW:test.or# USR~G809 +MAC:3CA525AA8B99			Receive from 192.168.21.13 +VER:V1.0.03	3 : 50567]:	(1) Protocol TCP Server (2) Local host IP (3) Local host pot [2317 Disconnec: Recv Options Receive to file. Add line return Receive to HEX Receive August Sand Options Data from file. Auto Checksum Auto Checksum Auto Checksum
└── Send Recycle Interval 1000 ms	test.cn#at+mac	^	Send	Peers: 192.168.21.133:505	Send	☐ Send Recycle Interval 1000 ms

9.3. Network AT Commands

Network AT command refers to set and query parameters by sending "Command password + AT command" through the network when working in transparent mode. Here we query the firmware version of the device, there is an "Enter" after the command.

COMSettings	COM port data receive		Network data receive	NetSettings
PortNum COM21 BaudR 115200 DPaity NONE DataB 8 bit StopB 1 bit Copen Recv Options			C Receive from 172.16.11.31 : 53521 +VER:V1.0.05	1) : (1) Protocol TCP Server (2) Local host IP (2) Local host IP (3) Local host port (3) Local host port (4) Local host port (5) Local host port (5
Receive to file Add line return Receive As HEX Receive Pause Save Clear			1	 ☐ Receive to file ☑ Add line return ☐ Receive As HEX ☐ Receive Pause Save Clear
Send Options Data from file Auto Checksum Auto Clear Input Send As Hex			P	Send Options Data from file Auto Checksum Auto Clear Input Send As Hex
Send Recycle	Jinan USR Technology Co., Ltd.	Send	Peers: 1/2.16.11.31:53521 -	Send Luck Class



9.4. SMS AT Commands

In transparent mode, we can also send SMS to query and set the device parameters. Here we send "Command password+AT Commands" to query the socket connection status.

	www.usr.c	n#at+socka
		14:51 🛛
+SOCKA:TCPC, <u>test.usr.</u>	<u>cn</u> ,2317	
14:51 🛛		

For detailed AT Commands, please refer to AT Command set.

10. Contact Us

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