Telrad AOL-TE721 User Manual

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1. About this Manual

The content of this User Manual has been made as accurate as possible. However, due to continual product improvements, specifications and other information are subject to change without notice.

2. Product Overview

This CPE supports LTE B42/43/48 (Subject to the configuration of LTE module) and it supports popular operating systems like Windows, Linux and Mac.

Once you have identified the place for CPE, insert USIM card supplied by your service provider at the appropriate place, plug in the adapter in the AC socket and DC in the power port of CPE. Power On device, after few minutes the CPE should attach itself to the LTE network. It is as simple as that. It is advised to read this manual at leisure to make best use of the CPE.

3. Login

Open your Web browser and enter 192.168.0.1, username: admin, Password: admin.

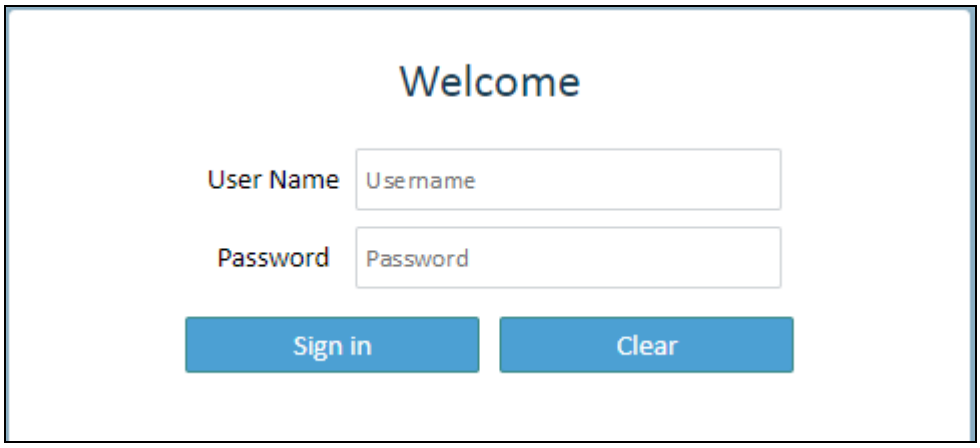

Figure 3-1-1 Login

4. Home page

4.1 LTE

There are 6 function on this page, they are “Overview”, ”ND & S” , ”PLMN Selection”, “eNB Settings”, “Bearer Settings”, “PIN Management”

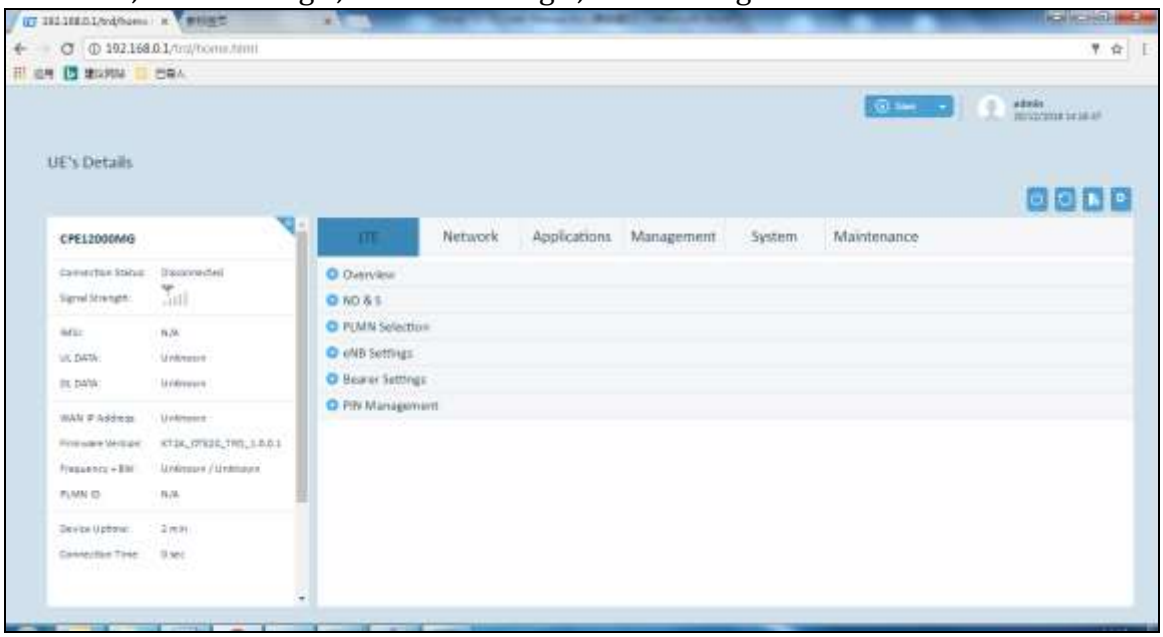

Figure 4-1-1 LTE

4.1.1 Overview

There are more LTE information on this page, they are “Serial Number”, “IMEI”, “IMSI”, “Supported Band”, “Firmware version” and so on.

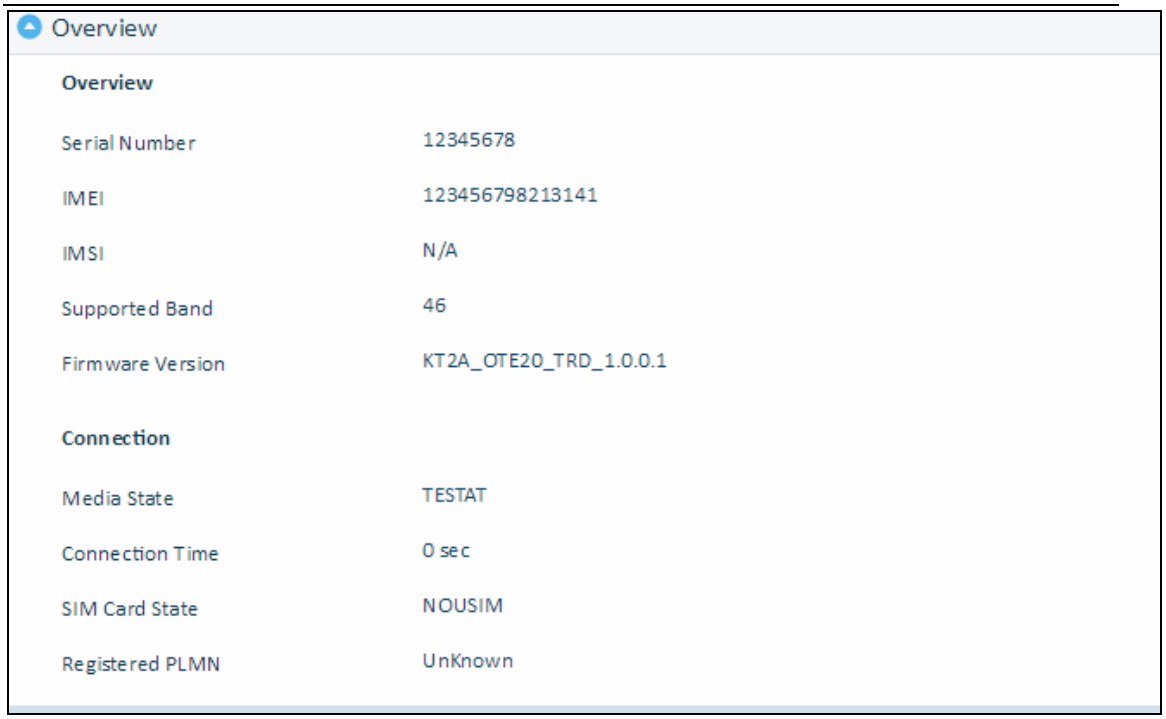

Figure 4-1-1-1 Overview

4.1.2 ND&S

On this page include “Uplink QAM64”, “Scan Mode” and “Band”

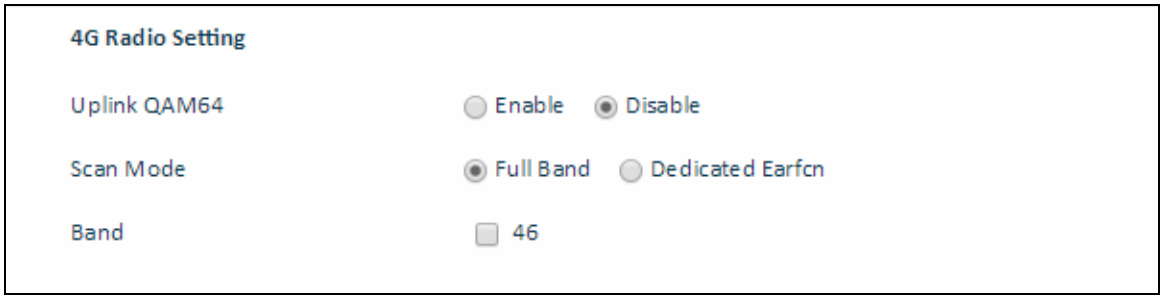

Figure 4-1-2-1 ND&S

- **Uplink QAM64:** Enable/Disable
- **Scan Mode:** Full band/Dedicated Earfcn
- **Band:** Supported Band selection (Default band is 46)

4.1.3 PLMN Selection

On this page, include “Network Mode “and “Allow Roaming”

Figure 4-1-3-1 PLMN Selection

- **Network Mode:** there are two modes Nomadic, Mobile
- **Allow Roaming:**

If "allow roaming" is checked, then CPE first selects eNBs from the Home/ Equivalent PLMN-IDs, Otherwise If not available, it tries connection to "any" PLMN-ID.

If "allow roaming" is not checked, the CPE is allowed to connect to eNBs from Home/ Equivalent PLMN-IDs only.

- **Equivalent PLMN-ID List:** Home PLMN-ID can be created automatically from SIM's IMSI (read-only). Customer can also add PLMN-ID.
- **Nomadic:**

Preferred eNB List: Enable/ disable "preferred" selection checkbox

Lock ND&S to the preferred list: limit eNB selection to the "preferred" list only. Condition – this checkbox should be possible only if "enable preferred list" is checked.

Auto-Rescan Duration: Forces CPE to perform periodic re-scan/ re-connection (Nomadic mode only) – in order to connect to the best/ preferred eNB according to the "best eNB list"

Preferred eNB list: configure "preferred" list

4.1.4 Bearer Settings

The default APN is "internet", if you want to configure the LTE APN, you can add the new APN and change default APN, then you can configure the APN settings by clicking on the " " button.

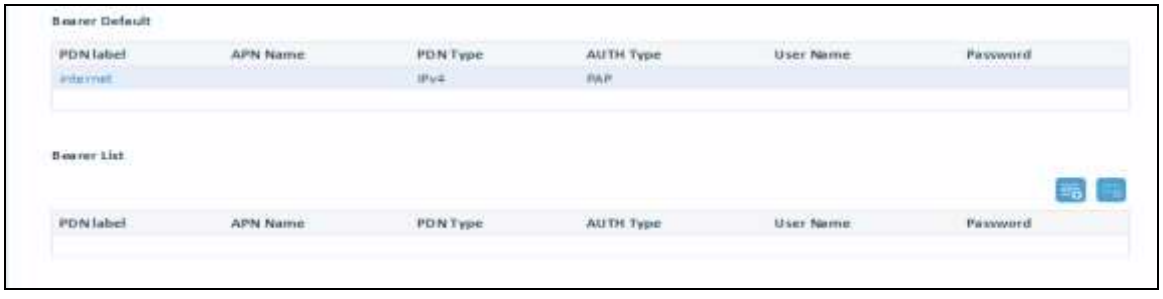

Figure 4-1-4-1 Bearer Settings

4.1.5 PIN Management

From this page, you can see the USIM card status and PIN status.

The default PIN status is disabled; you can input the correct PIN to enable the PIN function. The maximum PIN attempts are 3, otherwise you must enter PUK to reset the PIN code. The USIM will be invalid after the unsuccessful attempts for 10 times.

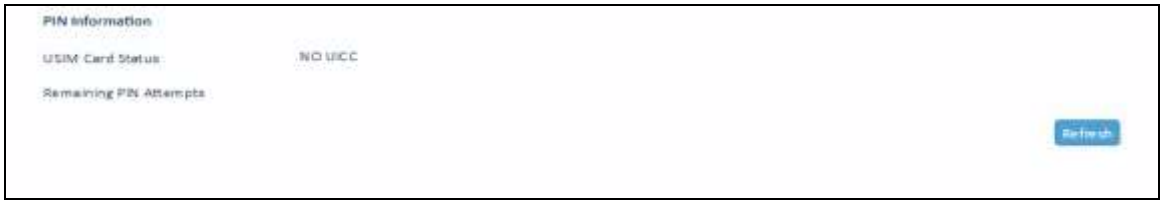

Figure 4-1-5-1 PIN Management

4.2 Network

4.2.1 Overview

On this page, you can see LAN setting information. They are “LAN IP address”, “LAN Subnet Mask”, “Local DNS”, “LAN Porte Status”, “Speed / Duplex”, “Sent(Errors/Dropped)”, “Received(Error/Dropped”, “RX CRC Errors” and so on.

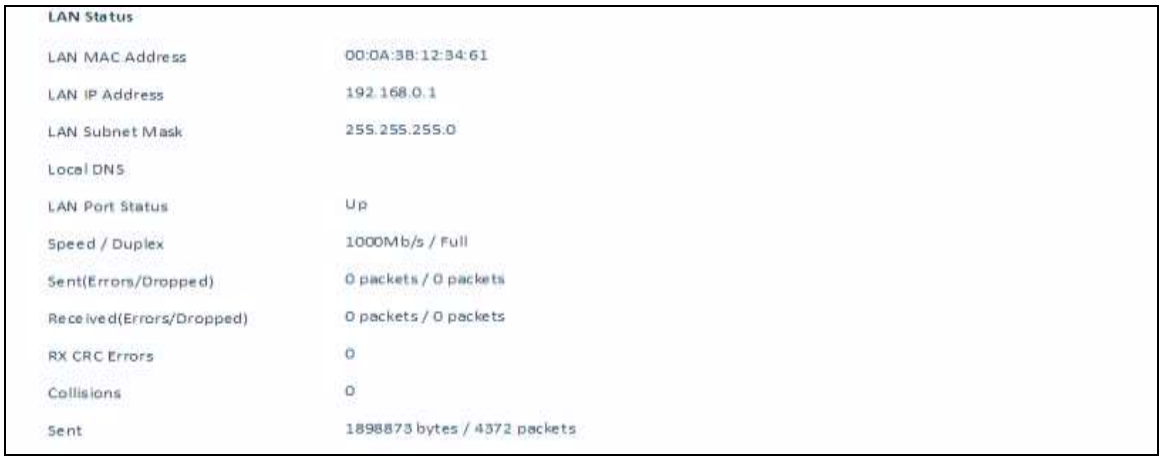

Figure 4-2-1-1 Overview

4.2.2 Internet

On this page, include “Connection Mode”, “NAT”, “MGMT and Date Interface”, and “MTU”.

Figure 4-2-2-1 Internet

- **Connection Mode:** Route/NAT, L2 Bridge(GRE), L3 Bridge
- **NAT:** Default Enable
- **MGMT and Date Interface:** Combine/ Separate

4.2.3 LAN

On this page, include “LAN Reset”, “Device IP” and “DHCP”

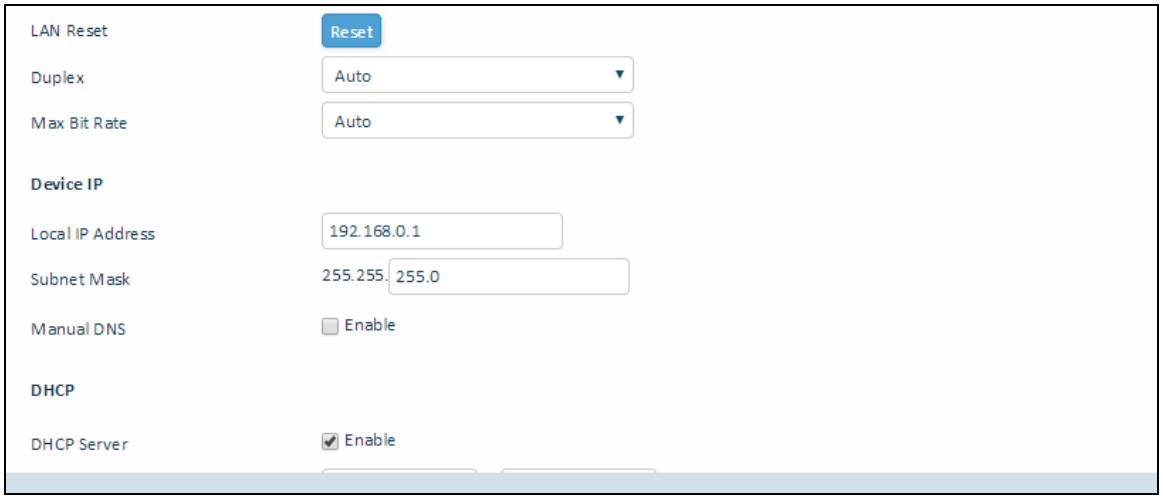

Figure 4-2-3-1 LAN

- **LAN Reset:** Restore of LAN default setting.
- **Duplex:** Auot/Full/Half
- **Max Bit Rate:** 10Mbps/100Mbps/1000Mbps
- **Local IP Address：** Enter the IP address of your router (factory default: 192.168.0.1).
- **Subnet Mask：** An address code that determines the size of the network. Normally use 255.255.255.0 as the subnet mask.
- **DHCP：** Defaul Enable
- **DHCP Address Allocation:** Specify an IP address for the DHCP server to start and end with when assigning IP address.
- **DHCP lease time:** The Lease Time is the amount of time a network user will be allowed connection to the router with their current dynamic IP address. Enter the amount of time in minutes and the user will be "leased" this dynamic IP address. After the time is up, the user will be assigned a new dynamic IP address automatically.
- **Static IP** - IP/MAC binding function, the system will assign a fixed IP address to the MAC according to the rules.

4.2.4 VPN

A virtual private network (VPN) is a point-to-point connection across a private or public network (Internet).

VPN Passthrough allows the VPN traffic to pass through the router. Thereby we can establish VPN connections to remote network.

Figure 4-2-4-1 VPN

4.2.5 Qos

On this page, include “DSCP Configuration” and “TOS Configuration”, you can change Qos setting by manual.

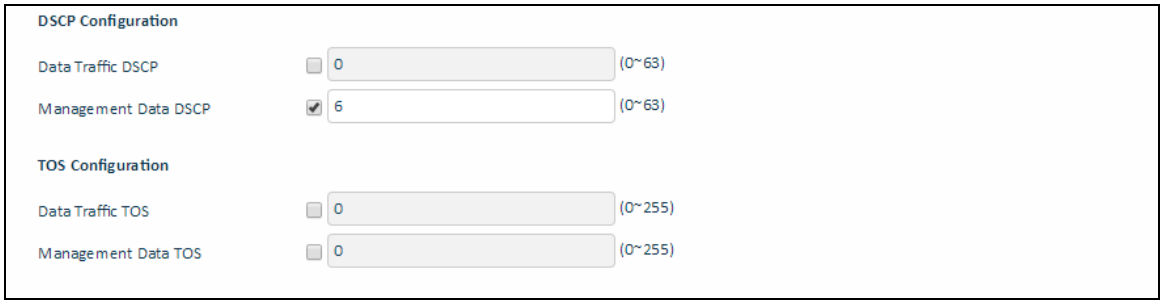

Figure 4-2-5-1 Qos

- **Data Traffic DSCP:** Default value is 0. The range is 0~63.
- **Management Data DSCP:** Default value is 6. The range is 0~63.
- **Data Traffic TOS:** Default value is 0. The range is 0~63.
- **Management Data TOS:** Default value is 0. The range is 0~63.

4.3 Applications

4.3.1 Port forwarding

Clicking on the “ ” button, you can configure IP address, port range to achieve the port forwarding purpose.

Figure 4-3-1-1 Port Forwarding

4.3.2 DMZ

From this page, you can configure a De-militarized Zone (DMZ) to separate internal network and Internet.

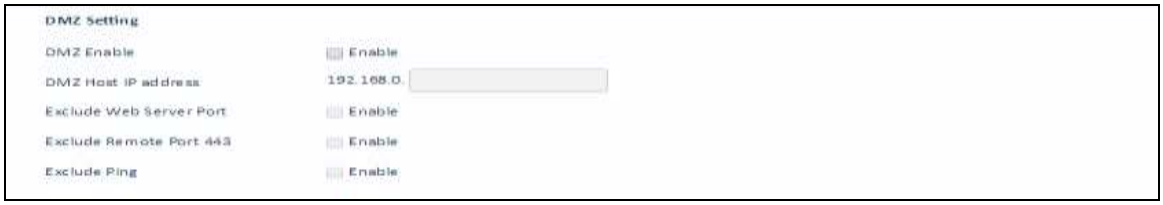

Figure 4-3-2-1 DMZ

- **DMZ Enable:** Default value is Disable
- **DMZ Host IP address:** The IP address of your PC.
- **Exclude Web Server Port:** Default value is Disable
- **Exclude Remote Port 443:** Default value is Disable
- **Exclude Ping:** Default value is Disable

4.3.3 DDNS

The dynamic DNS function is disabled in default, you can choose the dynamic DNS provider to configure the DDNS settings.

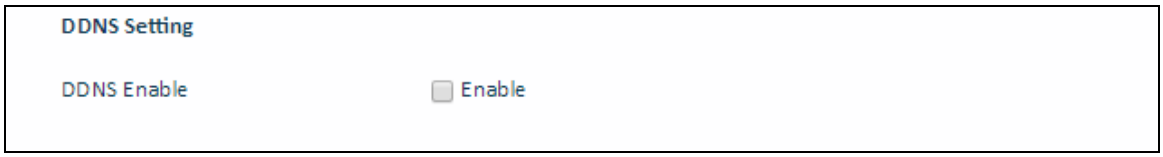

Figure 4-3-3-1 DDNS

4.4 Management

4.4.1 Device Management

On this page, include “ Allow ping from WAN ”, “Telnet Service”, “ SSH Service”, “ Access Control ”

Figure 4-4-1-1 Device Management

4.4.2 TR069

On this page, include "TR069 Enable" and "TR069 Configuration"

Figure 4-4-2-1 TR069

- **TR069:** Default value is Enable
- **ACS Interface:** Default value is "lte0pdn0"
- **ACS Port:** Default value is "7547"
- **ACS URL:** Default " http://192.168.100.67:8080/dps/TR069"
- **ACS Username:** Default value is "acs"
- **ACS Password:** Default value is "acs"
- **Re-enter Password:** Default value is "acs"
- **Periodic Inform Enable:** Default value is Enable
- **Periodic Inform Interval:** Default value is "100", Range is " 90-604800"
- **Periodic Inform Time:** Default value is "2001-01-01"~"00-00-00"
- **CPE Username:** Default value is "cwmp"
- **CPE Password:** Default value is "cwmp"

- **Re-enter Password:** Default value is “cwmp”

4.4.3 SNMP

On this page, include “Snmpd”, “ Snmpd Read Only Community”, “ Snmpd Read Write Community”, you can change setting by manual.

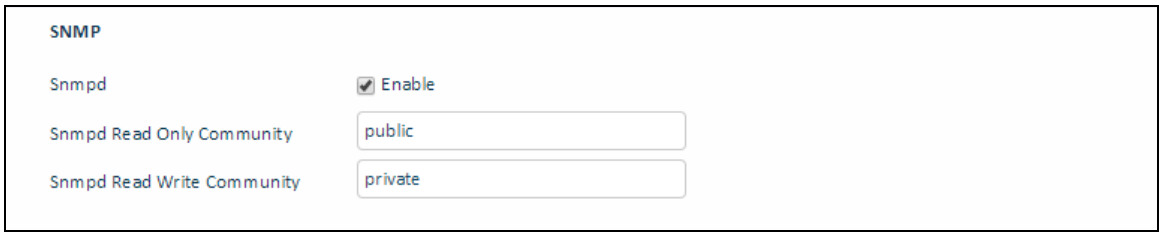

Figure 4-4-3-1 SNMP

- **Snmpd:** Default value is Enable
- **Snmpd Read Only Community:** Default value is “public”
- **Snmpd Read Write Community:** Default value is “public”

4.5 System

4.5.1 Password

The default password is admin, you can enter 1~32 characters for 2 times as your new password. Then you would logout automatically and you should login to the system by the new password.

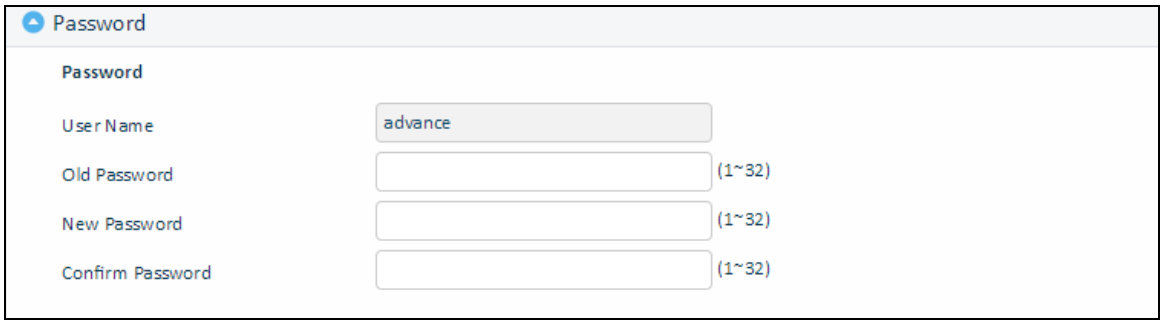

Figure 4-5-1-1 Password

4.5.2 Config Management

Clicking the “Export” button, the current settings will be saved as a data file to the local PC. You can restore the device configuration from the files that you saved.

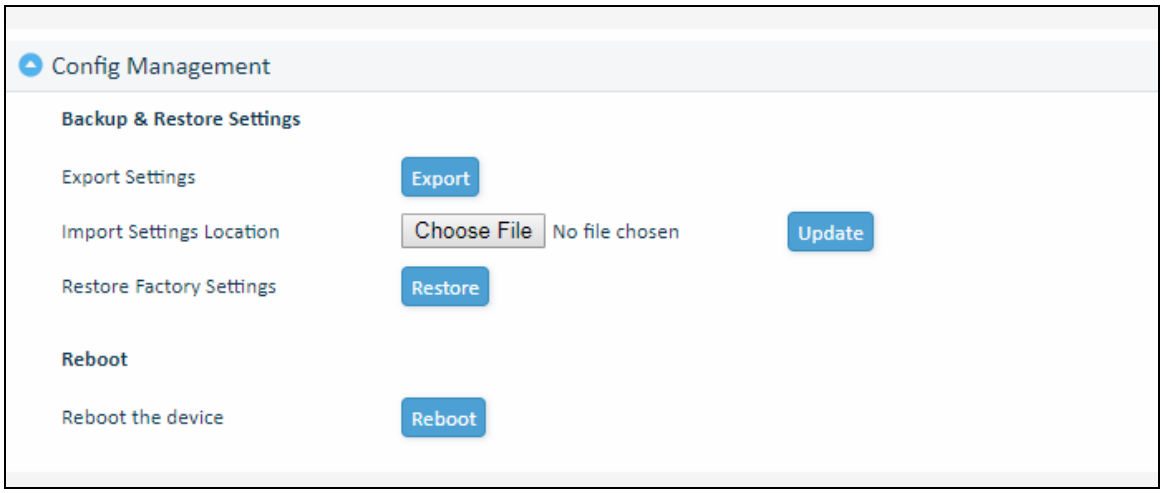

Figure 4-5-2-1 Config Management

4.5.3 Firmware Update

On this page, you can upgrade the current Router version from the local PC. 30s is needed to complete the whole upgrade process, and then the device will reboot automatically.

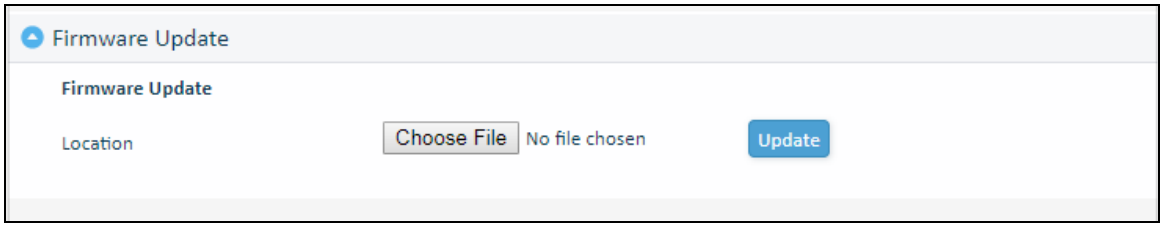

Figure 4-5-3-1 Firmware Update

4.6 Maintenance

4.6.1 Ping

On this page, you can ping IP address by manual.

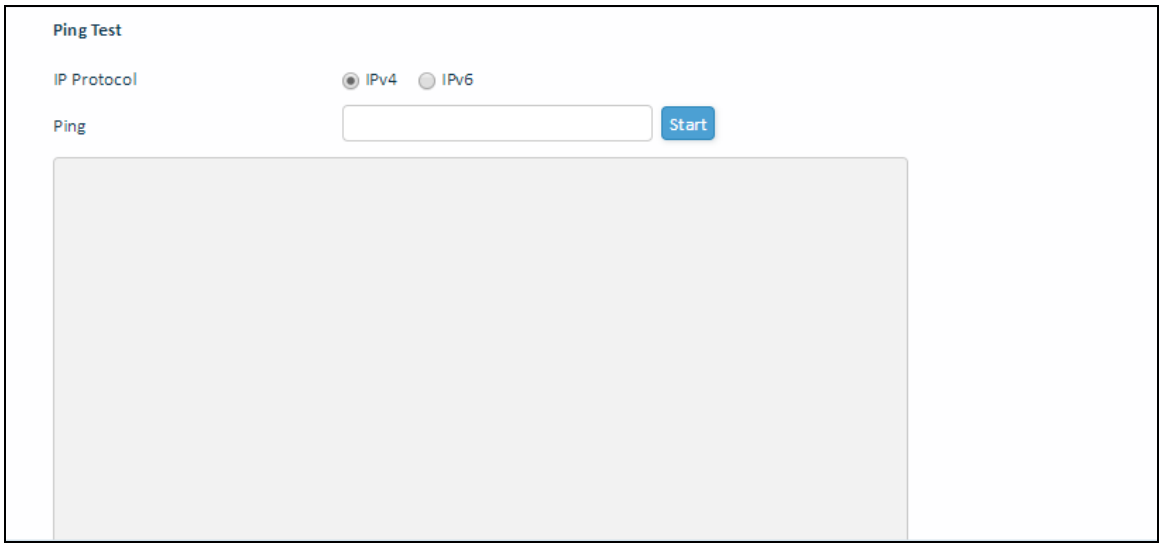

Figure 4-6-1-1 ping

4.6.2 Iperf

On this page, you can use the page of “iperf”, test throughput function.

Figure 4-6-2-1 Iperf

- **Status:** Default value is “Enable”
- **Server Address:** Default value is “8.8.8.8”
- **Server Port:** Default value is “5001”, the range is 1024~65535
- **Management Port:** Default value is “5001”, the range is 1024~65535
- **Measurement Time:** Default value is “60”
- **Protocol Type:** TCP/UDP
- **Windows size:** Default value is “256”
- **TCP Client Number:** Default value is “1”, the range is 1~10

4.6.3 Traceroute

On this page, you can Trace IP address by manual.

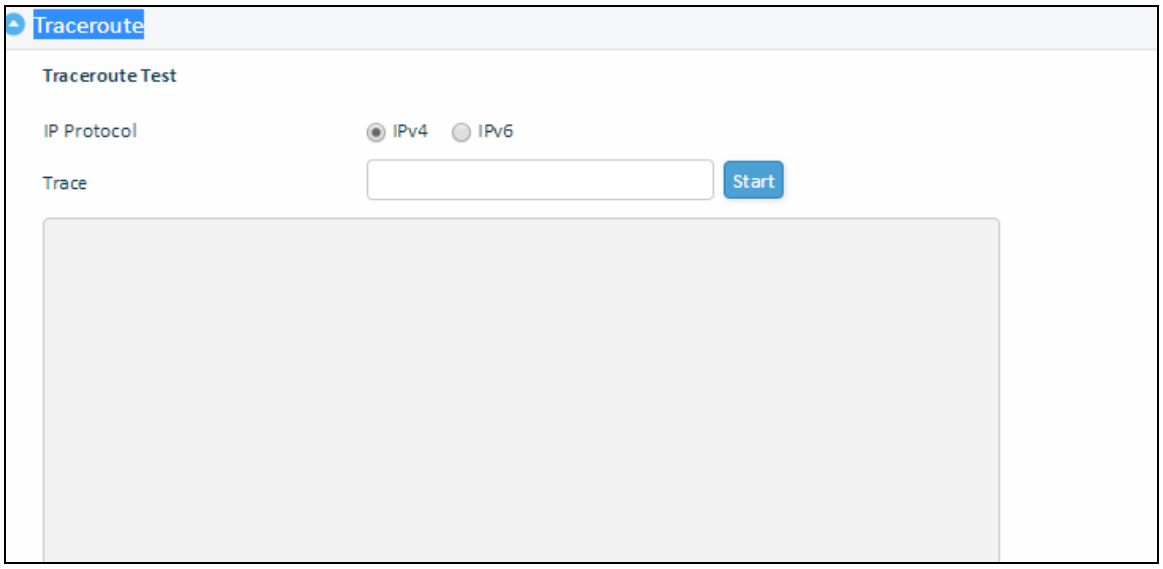

Figure 4-6-3-1 Traceroute

5. Preface

5.1.1 Preface of product highlights and specifications

Item	Description
Size	330(L) x 330(W) x 75(H) mm(IP67)
Color	Off-White
LED	Power, ETH, SIM, 5 RF CINR bars
RJ45 connector	1 Giga port, need support passive POE 56V
USIM Interface	1 USIM interface inside the cover
External Antenna port	**Not support**

5.1.2 LTE Specification

Key features	Specification
3GPP Version	Release 12
UE category	Category 12
Bandwidth-No CA	5,10,15,20MHz
CA support	5+5/ 10+10 / 15+15 / 20+20MHz
MIMO	4x4
UL/DL sub frame configuration	Configuration 1,2,3,4,5,6
Special sub frame configuration	0,1,2,3,4,5,6,7,8
Transfer mode	TM1, TM2, TM3, TM4, TM7,TM8,TM9
Data Speed	Down load420Mbps, Up load 80Mbps

5.1.3 Special Features :

Ethernet Protocol	10/100/1000Mb protocol
IP Routing	TCP,UDP,ICMP,ARP
General	DHCP,NAT/NATP
RJ45	1 Giga Ethernet Ports with passive PoE PIN enabled（56V）
USIM interface	One USIM interface under the cover
Power supply	Passive POE
Max power consumption	56V / 0.45A
Maxim length of Ethernet cable	100 meters
Water & Dust Protection	IP67
Operating Temperature	-30 to +60 ºC(running under 25℃, the housing temperature should be under 50℃)
Humidity	0 to 95%

6. Mechanical Chapter

6.1.1 Installation

Installation as below:

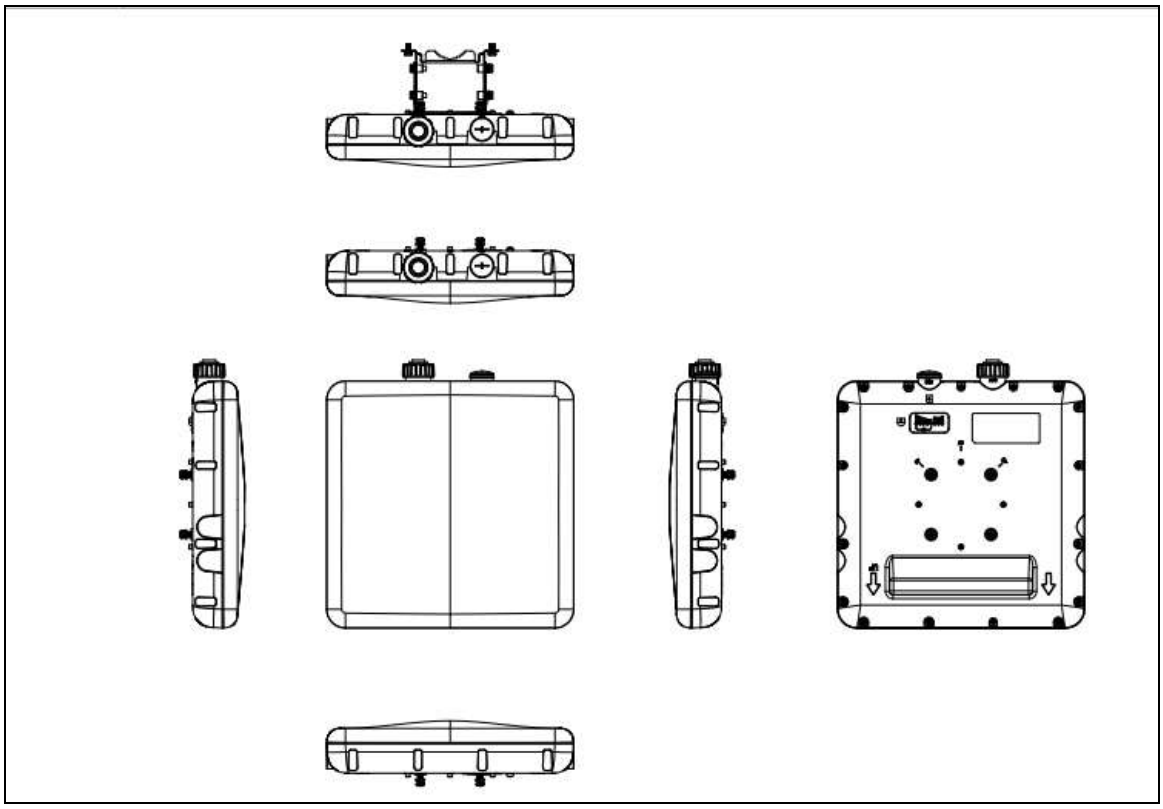

Figure 6-1-1-1 Mechanical

6.1.2 To mount the CPE to wall

To mount the CPE to wall, follow the steps below:

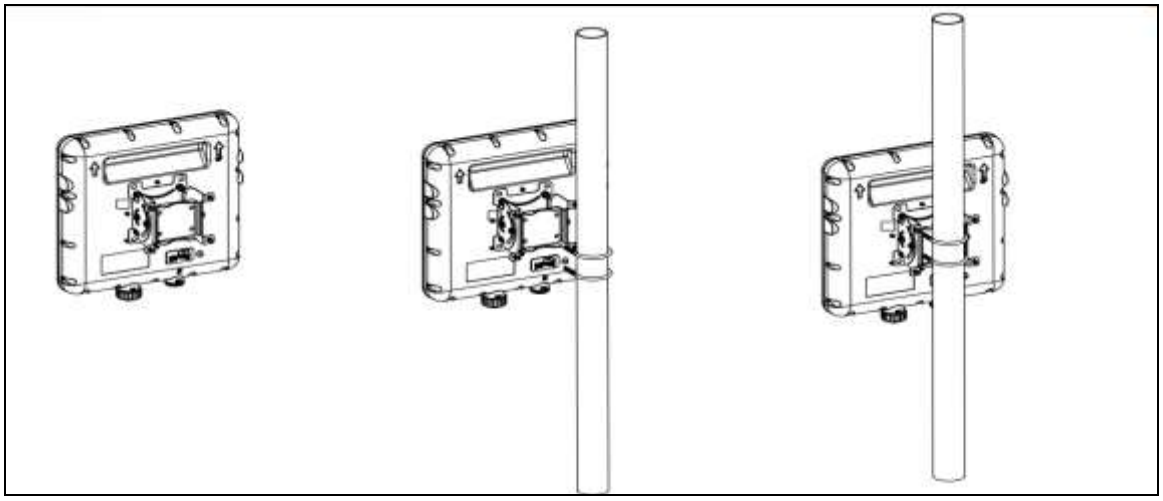

Figure 6-1-2-1 To mount the CPE to wall

6.1.3 Install the USIM card:

This CPE is specially designed for the 4G LTE network. Please check that you have a valid USIM card from the service provider.

1. USIM Card Slot

This slot is for inserting the USIM card.

2. PoE Port

This Port is used for connecting PoE Power Supply using an Ethernet Cable (This cable must have all four pairs connected to the RJ45 connector). Do not use low cost cables that have only two pairs connected.

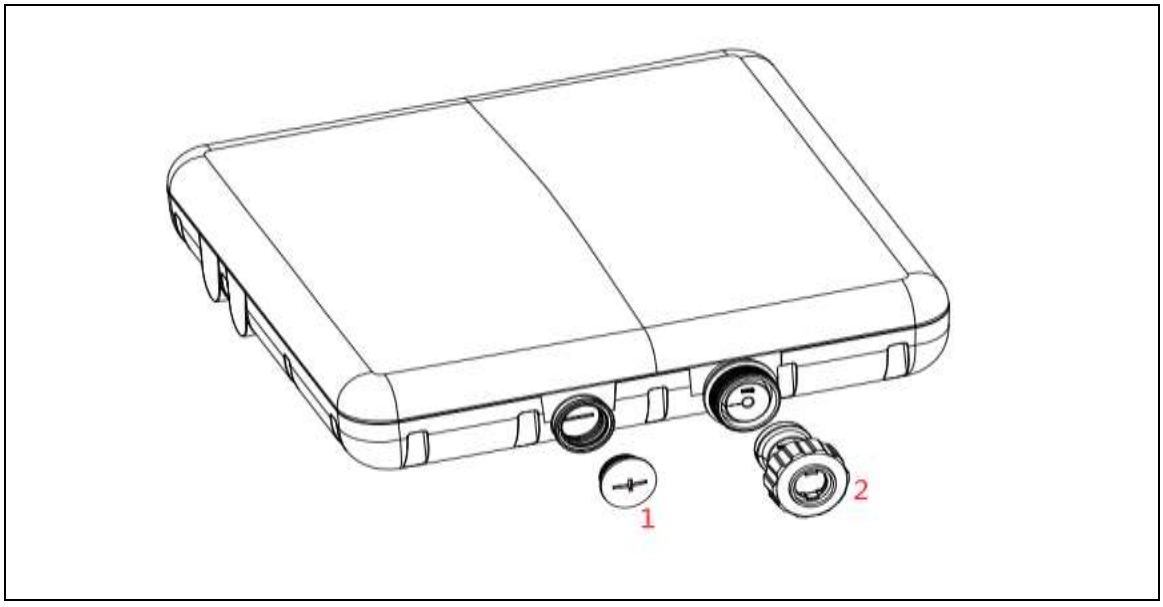

Figure 6-1-3-1 Install the USIM card

6.1.4 Product Shipping Package

1. Main Lable

On Main Label, you can see IMEI/MAC/SN on it.

Figure 6-1-4-1 Main Label

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Warning Statements:

This device meets the government's requirements for exposure to radio waves.
This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 38 cm from all persons during the normal operations.

IC STATEMENT

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device complies with the Canadian ICES-003 Class B specifications. CAN ICES-3(B)/ NMB-3(B)

This device complies with ISED RSS-102 RF exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the IC RSS-102 RF exposure limits, In order to avoid the possibility of exceeding the IC radio frequency exposure limits, human proximity to the antenna shall not be less than 38cm (15 inches) during normal operation.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la CNR-102 définies pour un environnement non contrôlé. Afin d'éviter la possibilité de dépasser les limites d'exposition aux fréquences radio de la IC CNR102, la proximité humaine à l'antenne ne doit pas être inférieure à 38 cm (15 pouces) pendant le fonctionnement normal.

7. Revision History

Author	Revision	Changes	Date
Fhan	1.0	Create Draft	2020-11-02
Fhan	1.1	Change Main Label	2020-12-09