



Outdoor CPE8000 Installation and Configuration Guide V1.0

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PLEASE READ THESE SAFETY PRECAUTIONS!

RF Energy Health Hazard



The radio equipment described in this guide uses radio frequency transmitters. Although the power level is low, the concentrated energy from a directional antenna may pose a health hazard

Do not allow people to come in close proximity to the front of the antenna while the transmitter is operating.

Protection from Lightning



Before connecting this instrument to the power line, make sure that the voltage of the power source matches the requirements of the instrument. The unit must be standards.

Disposal and Recycling Information



Pursuant to the WEEE EU Directive electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

Reduction of Hazardous Substances



This CPE is compliant with the EU Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (Regulation No 1907/2006/EC of the European Parliament

and of the Council) and the EU Restriction of Hazardous Substances (RoHS) Directive(Directive 2002/95/EC of the European Parliament and of the Council).

FCC Notice, USA

The CPE8000 units comply with Part 25 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This device is specifically designed to be used under Part 15, Subpart E of the FCC Rules and Regulations. Any unauthorized modification or changes to this device may void the user's authority to operate this device.

Furthermore, this device is intended to be used only when installed in accordance with the instructions outlined in this manual. Failure to comply with these instructions may also void the user's authority to operate this device and/or the manufacturer's warranty.

The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

1. Overview

The ODU is a high performance 4G LTE outdoor CPE product designed to enable quick LTE fixed data service deployment to the remote customers. It provides high data throughput and networking features to end users who need both bandwidth and quality service in the remote area.



1.1. User Interface Specification

Model	Description & User Interface
	- Panel antenna:
	B3_7 14dBi, B20 7dBi, B38_40_41 13dBi, B42_43 15dBi
	- 1 RJ45 10/100M LAN Port
ODU	- PWR, RUN, LAN, SIM, LTE(1-5) LEDs
	- 48 VDC PoE supply, ODU Power <10 Watts
	- Dimensions: 203 mm (L) × 203 mm (W) × 76.5 mm (D)
	- Weight: < 2 Kg

1.2. LTE Interface Specification

Frequency Bands	Band 3_7 / 20 / 38_40_41 / 42_43	
Radio Access	3GPP LTE Release9	
Operation Mode	TDD, 2RX, 1TXD, DLMIMO	
Output Power	Up to 23 dBm at antenna port	
Throughput	Category 4	
SIM Support	SIM card slot	

2. GettingStarted

2.1. Packing list and CPE Unit

Upon receiving the product, please unpack the product package carefully. Each product is shipped with the following items:

Table 2-1 Packing List

Outdoor CPE Products	Quantity
ODU unit	1
Power adapter	1
Power Line	1
Mounting brackets	1
PC Ethernet Cable	1

If you find any of the items is missing, please contact our local distributor immediately.

CPE Unit:

Unpacking the Equipment Table 2-1 lists all the standard parts that are supplied in your LTE CPE Unit Installation Package. Please take the time to unpack the package and check its contents against this list.



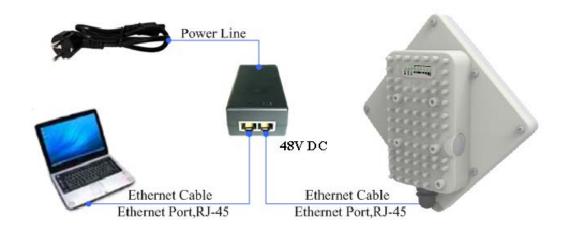
2.2. Installing the Equipment

◆ Device logic connection

For outdoor CPE product, it is suggested that the CPE device be installed in a shaded area to avoid direct sun light exposure which may cause over heat in certain extreme weather condition. The CPE should be properly grounded for proper protection against lighting or power surge. To power on the device, the outdoor CPE must uses a 48V PoE integrated DC power supply adapter. The power adapters can operate in 90-250V AC range and therefore can be used in different country. Once the device is powered up, the user should wait for about 2 minutes before

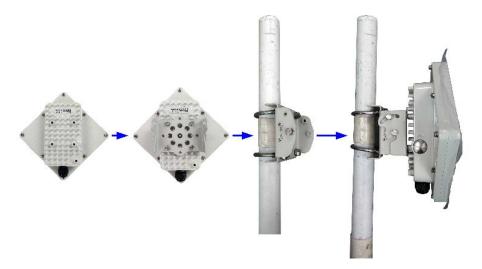
the device becomes operational. For CPE with the RUN LED indicator, a slowly flashing light indicates the system has completed the startup procedure.

To connect PC, LAN switch or other type of IP device to the CPE product, the user should use standard CAT5 Ethernet cable and connect to the appropriate LAN port. Once connect the CPE LAN LED indicator should come on.



◆ Installing Outdoor Unit (ODU)

Mounting Bracket::



Header Connection:





◆ LED Display

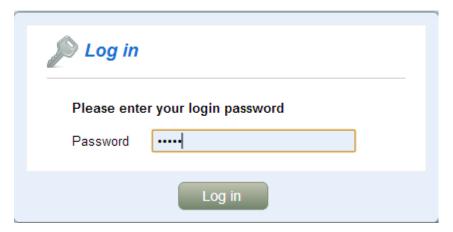
LED Indicator	Function	Description
PWR	Power Indicator	Green Color – Device is powered on
RUN	System Run Indicator	Fast Blinking – Device is rebooting Slow Blinking – Device is in normal operation
LAN	LAN port status	Solid Green – LAN port is up Blinking Green – LAN data activity in progress
SIM	SIM Card Indicator	Light is on – SIM card state ready.
RF(5LEDs)	RF Signal Strength	5 level signal strengths indication by 5 green LEDs 1 green LED: RSRP<= -118dBm 2 green LEDS: -118 dBm <=RSRP< -105 dBm 3 green LEDS:-105dBm<=RSRP< -95dBm 4 green LEDS:-95dBm<=RSRP< -85dBm 5 green LEDS:-85dBm<=RSRP

3. Managing CPE Device

The ODU supports several management interfaces including TELNET, WEB, and TR-069 for local or remote managements. However normal end user is only provided with WEB based access

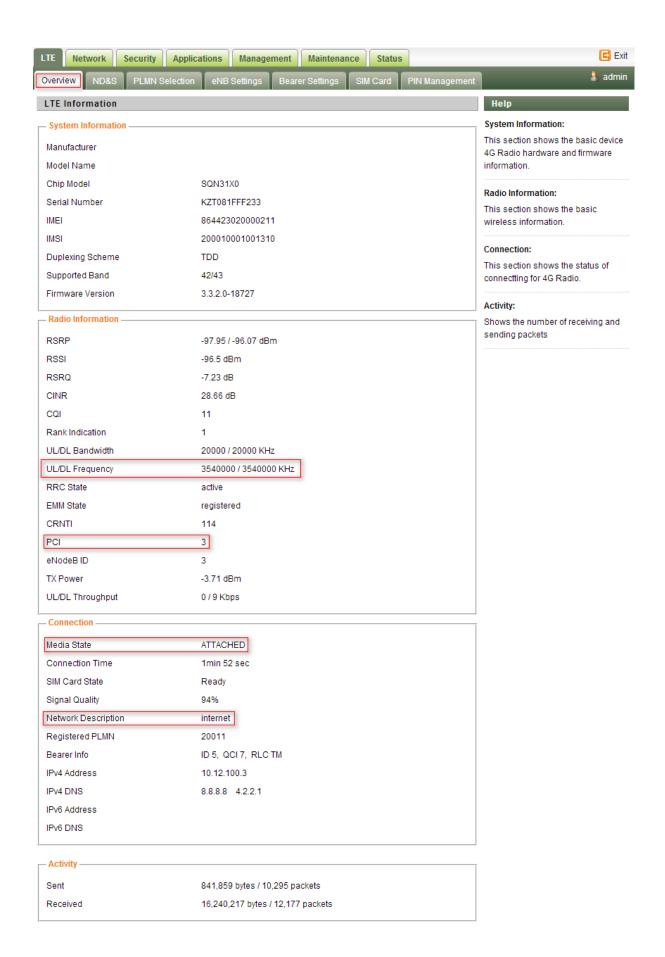
3.1. WEB Login--192.168.0.1

It is a preferred to setup the CPE using a Web browser from a local PC connected to device LAN port. The user should ensure that the connected PC acquired IP address via DHCP from the device. After IP connectivity is established between the PC and CPE device, the user may launch a Web browser and specify http://192.168.0.1 in the address bar. A window will pop up requesting password. Input the user login password and then click the "Log In" button. After successful log on, the default home page of the WEB GUI interface will appear. Note that the default user password is "admin123".



3.2. LTE Status Display-Overview

Once the user is logged in, the following window LTE Information window will be prompted for viewing. The page gives quite detailed LTE information including the System Information, the UL/DL Frequency, the PCI and the Connection status

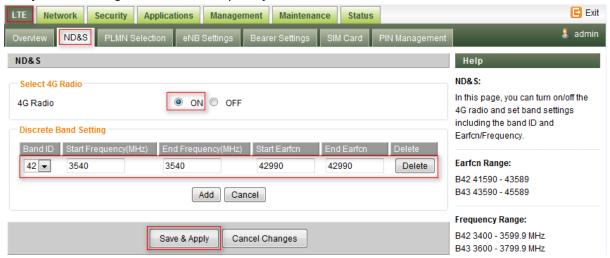


3.3. LTE Configuration

Radio Settings-ND&S Configure

There is a LTE radio button which is used for the user can turn the radio on or off to restart the LTE module.

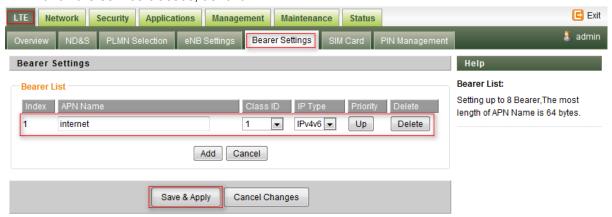
The CPE would scan frequency auto as soon as the system has completed the startup procedure, and you can configure the fixed Frequency manual as follow:



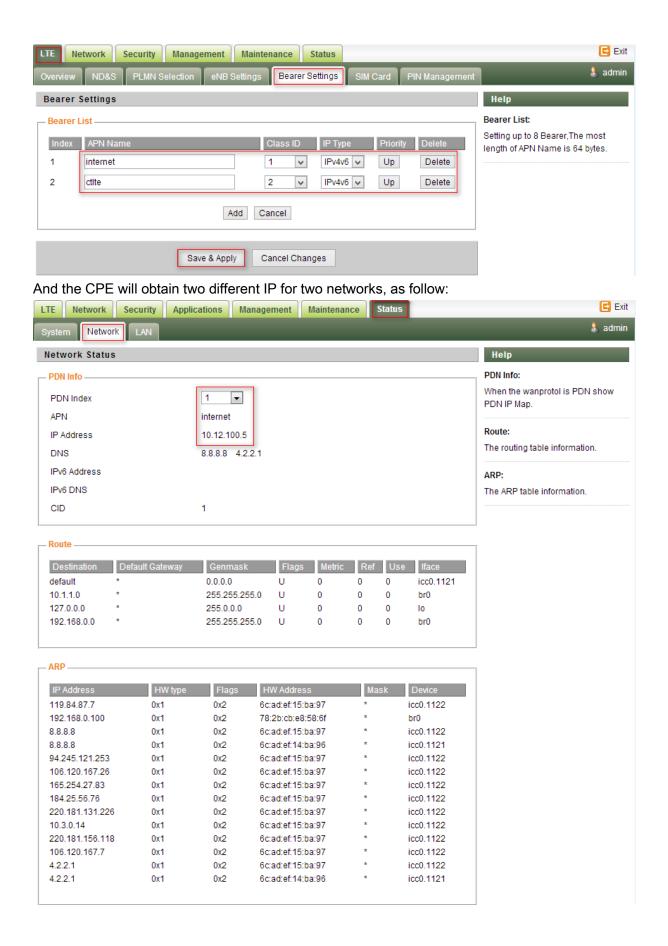
Note: After configure any parameters of the device, you must click the "Save & Apply" button to save the configuration otherwise the configuration will not take effect.

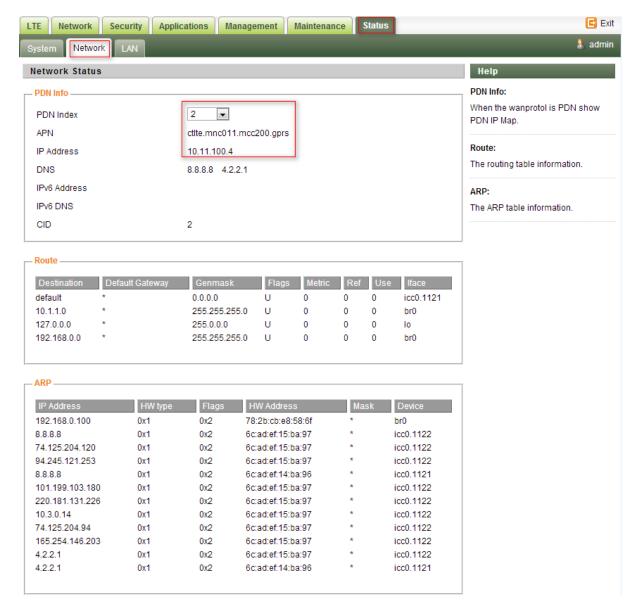
◆ APN Setting-Bearer configure

The Bearer List is design for the operator to configure the APN. You can configure the only one APN for all the service classes, as follow:



And the operator also can configure two APNs for Manage and data service classes. As follow picture, the Management Data Class will be transport via the "internet" network and the Data Traffic Class will be transport via the "ctlte" network.



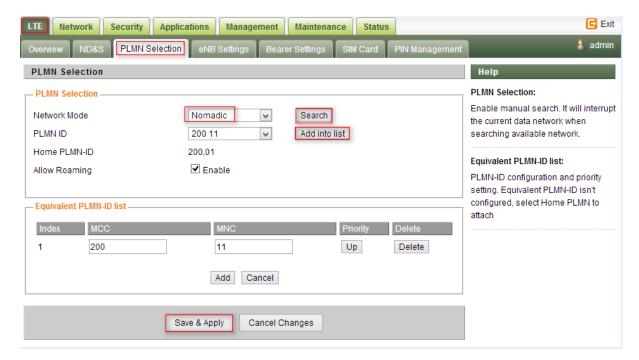


3.4. eNodeB Selection

The CPE would lock on the ND&S to connecting after the operator enabled the **Lock ND&S** when the Co-Channel Interference (CCI) is around.

PLMN Selection

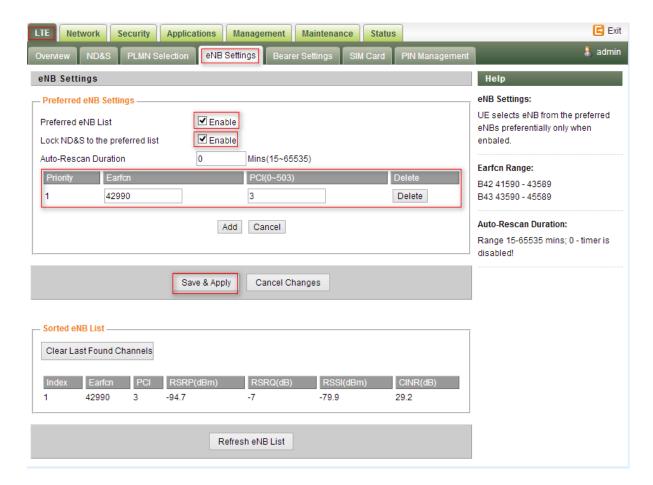
Setting "Network Mode" as Nomadic, then click the "Search" button, After the CPE searched the "PLMN ID", select the applicable PLMN ID and click "Add Info list" button to add the PLMN ID to the PLMN-List.



eNodeB Setting

After Enable the **Preferred eNB List** and configure the **Earfcn/PCI**, the CPE will scan the corresponding ND&S and connecting to

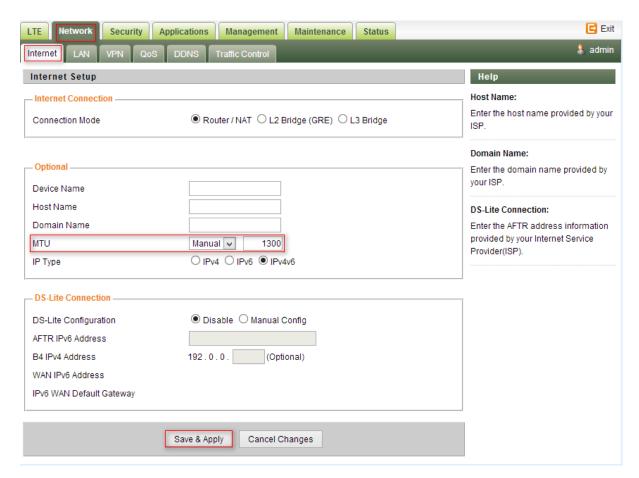
LTE—>eNB Settings—>Enable Preferred eNB List—>Enable Lock ND&S to the preferred list—>add the Earfcn and PCI—>Save & Apply



3.5. Network Configuration

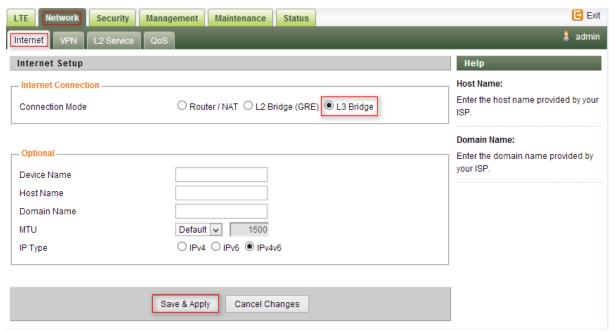
♦ Modify MTU Size

The default Operation Mode is Router, and the PC of the user that connected to device LAN port will obtain IP address via DHCP server of the device. The default MTU Size is 1428, user can modify the MTU Size if necessary



Change model from Router to Bridge

The operation mode could be changed from Router to Bridge if necessary .Change model as follow picture: Network—>Internet—>L3 Bridge—>Save & Apply

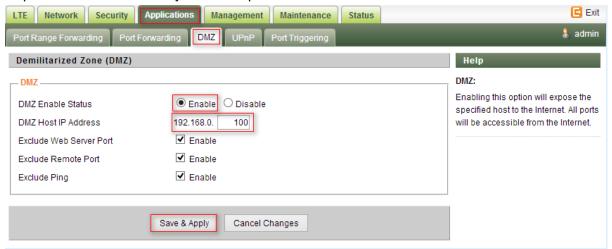


The operator's PC which connected the LAN port of CPE will auto obtain the IP of APN Net when the CPE attached to the APN network, then you can connected to the APN network for Page 15

data services. And the PC should configure a static IP address as 10.1.1.x manual in order to visit the CPE managing page http://10.1.1.1.

3.6. Service Configuration-DMZ Setting

By enabling this option will make the specified local LAN host (DMZ IP) was exposed to the Internet, all ports can be accessed by other computers on the Internet.

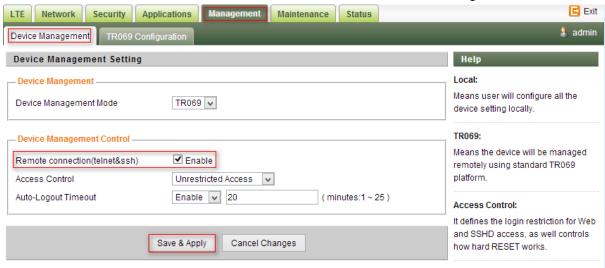


3.7. System Maintenance

WEB GUI menu to configure the device in more details (see diagram below). The configuration is easy to use and self explanatory.

◆ Telnet Enable(for beta release)

The users can telnet to the CPE in the beta release when set Telnet Management as Enable All.



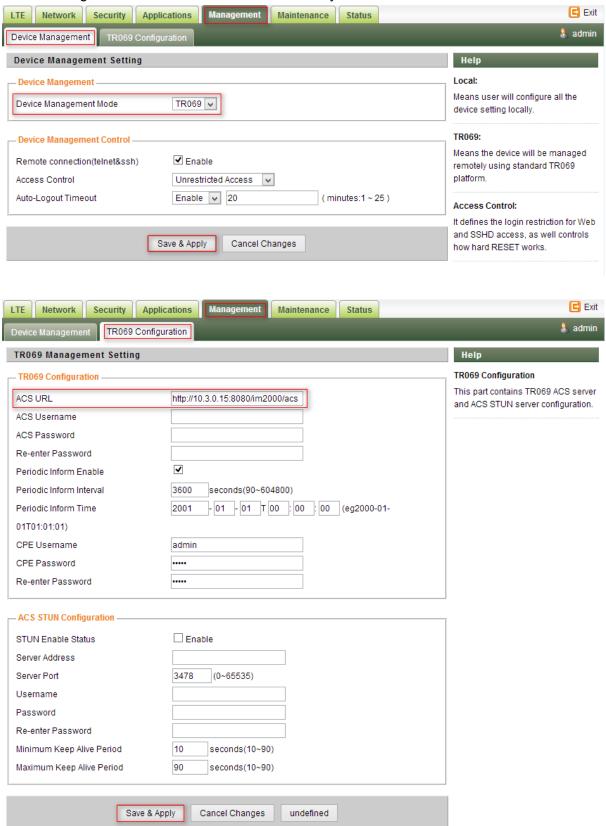
cmd shell and run command:

telnet 192.168.0.1 Login: admin

Password: root123

◆ TR069 Configuration

After setting the Device Management Mode as TR069, you must also configure the validity acs url for monitoring the device via standard TR-069 ACS systems.



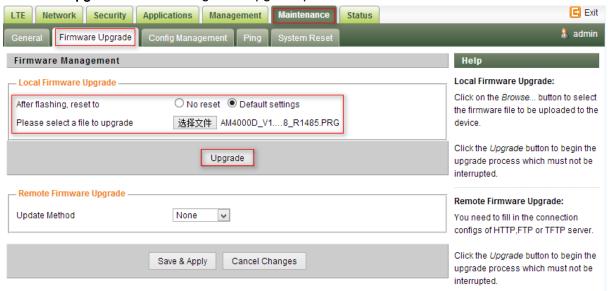
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◆ Firmware Upgrade over HTTP

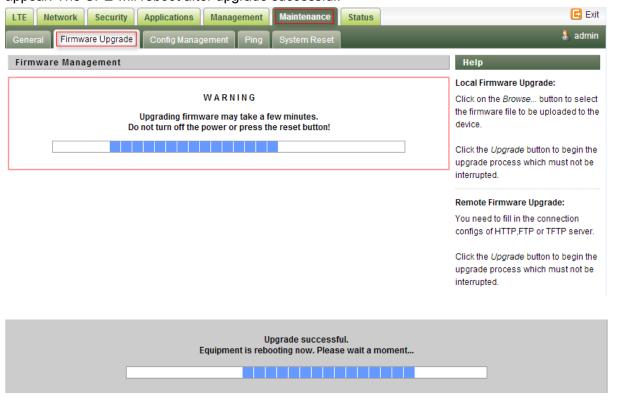
Select the **Default settings** to reset the CPE after upgrade

Click on the Browser button to select the firmware file to be uploaded to the device.

Click the" **Upgrade**" button to begin the upgrade process.

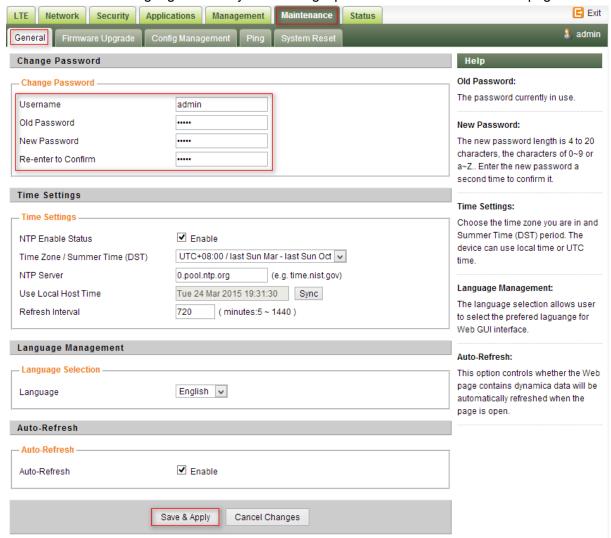


Please do not interrupt the upgrade process and continue to wait for the following pop window to appear. The CPE will reboot after upgrade successful.



Change Password

You can select the language or modify the web login password via the Maintenance page.



◆ Load Factory Default

Click the "Restore" button will restore the device to original factory setting. User will need to reconfigure the authentication setting in order to get the device operational.



4. FAQ and Troubleshooting

1) My PC cannot connect to the CPE.

- Re-plug the PC Ethernet cable and check if the PC LAN connection is up or showing activity.
- Check if the system run LED is on. If it is not, check the power cord and make sure it is connected properly. Also verify that the AC power supply is available.
- If the PC LAN shows no activity and system run LED is off but the power cord is connected properly and there is AC supply, then it is likely the adapter is damaged. Please contact distributor to obtain replacement part.

2) My PC cannot acquire IP from the CPE.

- First check if the NIC is up and working properly. Then check the PC NIC configuration and make sure the DHCP is enabled.
- Open the MS-DOS window, enter "ipconfig /release" and "ipconfig /renew" commands and see if PC can obtain IP correctly.
- If the problem persists, please contact the operator or distributor for further diagnose.

3) My CPE networking is not working properly.

- You may want to check if the LTE connection is up and running properly. You can do this by login the WEB GUI and check the Interface Info page.
- You may want to perform a factory reset and see if the problem is being corrected. You can do this by log into the WEB GUI using "admin" password and perform restore the unit to default factory setting.
- If the problem cannot be corrected by factory reset, please contact the operator or distributor for further diagnose.

4) I forget the login password and like to reset the unit to factory default.

- Please contact the operator or distributor and give them the MAC address of the unit. The operator or distributor can issue you a RESET password for you to enter in the WEB login window.
- After the unit is reset to factory default, you can login using the default password.