TECHNICAL DOCUMENT

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LIONS O-RU Quick Start Guide

V1.1.2

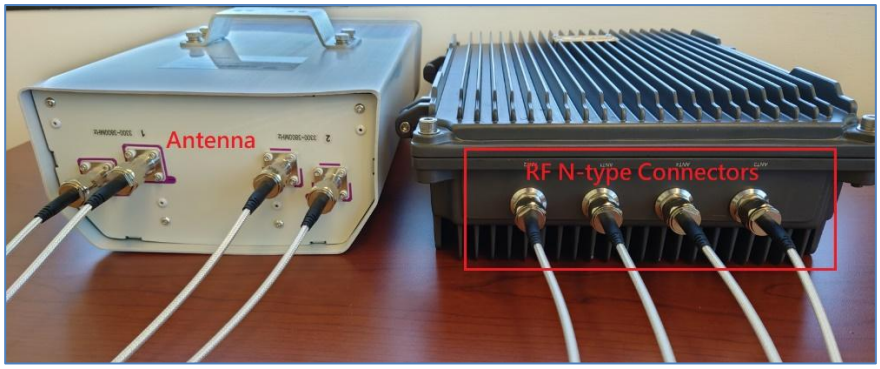
Document ID - PS-20231227-01

CONTENTS

1. Installation Connection

1.1 RF cable

Connect the RU's 4 RF ports to the band matched antenna through 4 of accessory RF cables. Make sure all RF cable N-type connectors are tightened well before you power on RU.



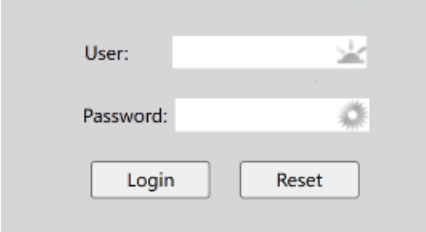
2.2 SFP+ & LAN & AC Power Port

1. **SFP+ Port:** This port is used for fronthaul C/U/S/M-Planes. Plug in the accessory optical fiber to RU's SPF+ port, and connect the optical fiber's another side to the SFP+ 1310nm single mode transceiver of DU (C1) or PTP FH switch (C2/C3).
2. **LAN Port:** This port is used for accessing RU's Web GUI and SSH, this LAN port default IP address is 192.168.100.10 without VLAN.
3. **AC Power:** RU supports AC 100~240V 50/60Hz. Plug in the accessory AC cord to the properly AC socket.

2. Log in RU

2.1 Log in RU Web GUI

1. In a PC that is connected with RU LAN port, open a web browser and visit RU Web GUI http://192.168.100.10.



2. Login by User: **admin** & Password: **adMin123456**

3. Set Parameters in RU

The following RU parameters might need to be set in the first time to connect with DU.

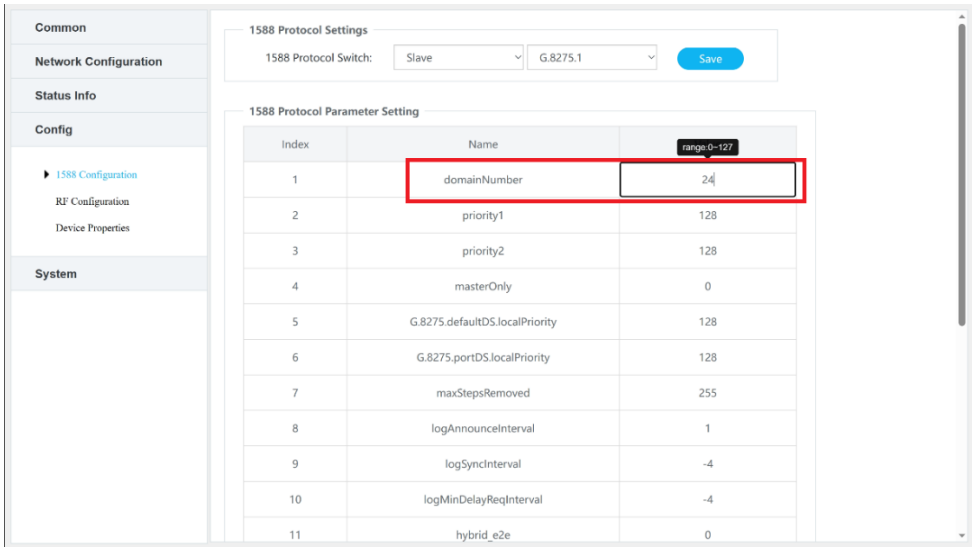
ID	Item Name	Description	Must
S-01	1588 Protocol Switch	Set RU as PTP client or master, and preferer profile.	M
S-02	1588 Parameters Setting	Advance PTP parameters.	O
CU-01	Peer MAC	Set DU's MAC address.	M
CU-02	C/U-plane VLAN	Set VLAN ID for C/U-plane.	M
CU-03	U-plane Compress Mode	Set compress mode for U-plane.	M
CU-04	PRACH Compress Mode	Set compress mode for PRACH.	M
CU-05	MIMO	Set 4x4 or 2x2. (Default: 4x4)	M
CU-06	Center Frequency (Hz)	Manual set RU cent Frequency if M-plane is not available.	M
CU-07	Antenna Gain	Set the antenna gain.	M
CU-08	Bandwidth	Manual set RU bandwidth if M-plane is not available. (Default: 100MHz)	M
M-01	RU IP Address for M-plane	Set RU IP address as DHCP IP address or Static one for M-plane. (Default: DHCP)	M
M-02	M-plane VLAN	Set VLAN ID for M-plane.	M
M-03	NMS IP address	Manual set NMS IP address if DHCP server with option43 is not available.	M

3.1 S-01 1588 Protocol Switch

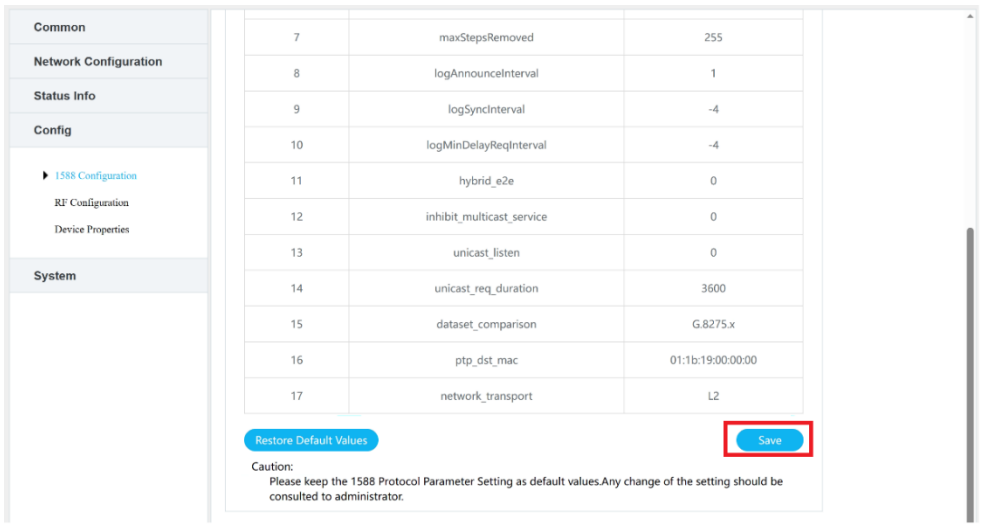
1. Go to Config>1588 Configuration page, you can set RU as PTP client or master, and its preferer profile in 1588 Protocol Switch.
2. After changing settings, click “Save” button for taking effect.

3.2 S-02 1588 Parameter Setting

1. Go to Config>1588 Configuration page, you can set the advance PTP parameters in this area. For example, if you have to change domain, click domainNumber value and key in new one you want.

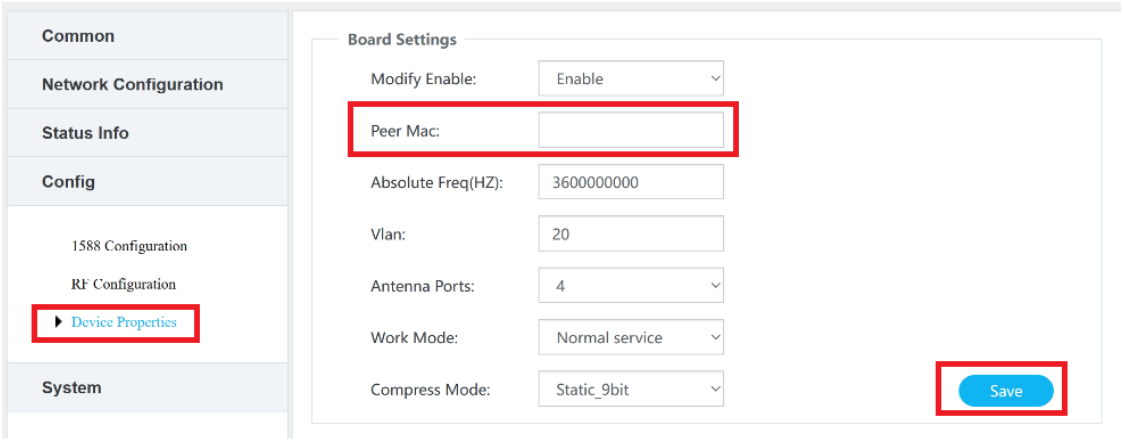


2. Press “Save” button for taking effect.



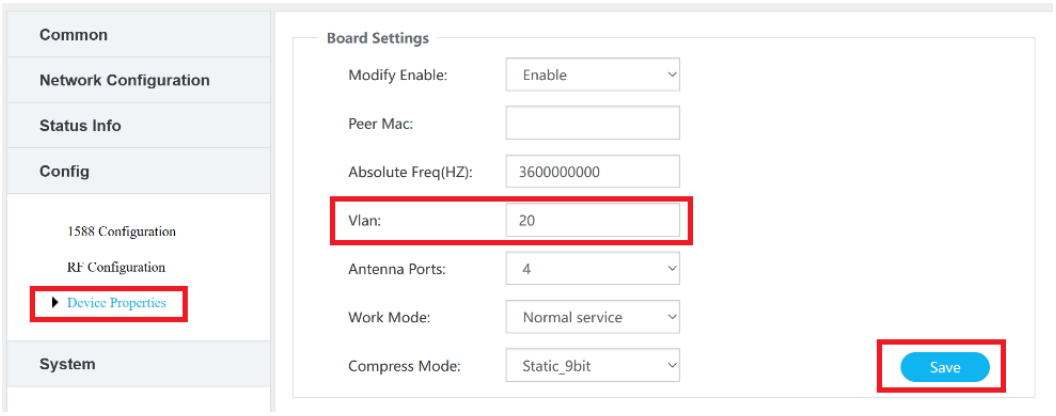
3.3 CU-01 Peer MAC

1. Go to Config>Device Properties page, key in the DU MAC address to Peer Mac column.
2. Click “Save” button for taking effect.



3.4 CU-02 C/U-plane VLAN

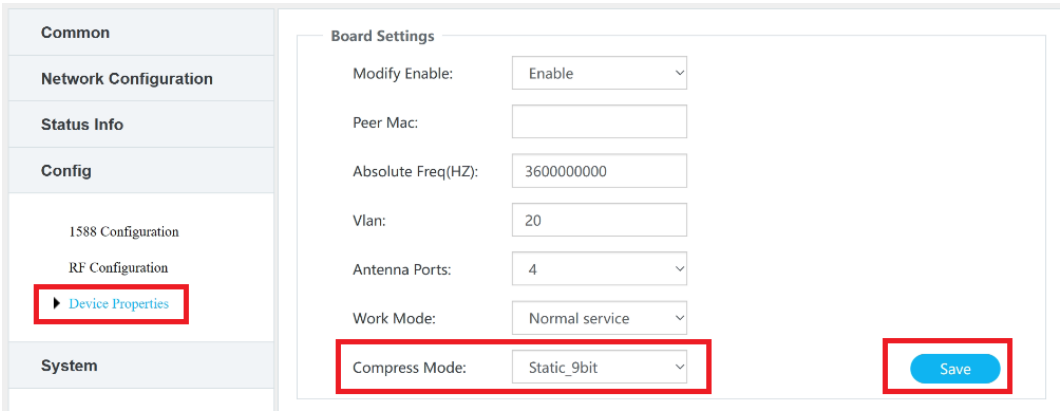
1. Go to Config>Device Properties page, key in C/U-plane's VLAN ID to Peer Mac column. If there is no VLAN for C/U-plane, key in 0.
2. Click "Save" button for taking effect.



3.5 CU-03 U-plane Compress Mode

LIONS RU supports BFP (Block Floating Point) compress static 9 bit or dynamic 9bit for U-plane so far.

1. Go to Config>Device Properties page, select Static_9bit or Dynamic in Compress Mode.
2. Click "Save" button for taking effect.



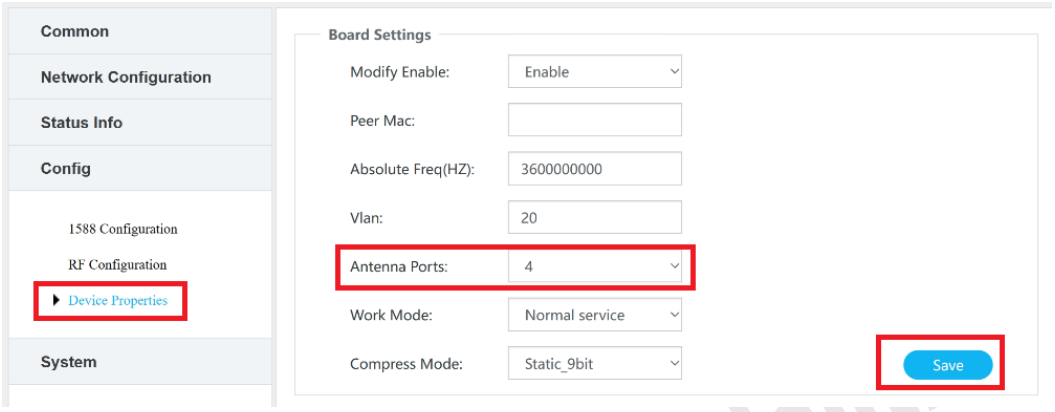
3.6 CU-04 PRACH Compress Mode

By default, LIONS RU uses non-compress 16bit for PRACH. LIONS RU can support static compress 9bit for PRACH as well, ask LIONS engineer help if you need this configuration.

3.7 CU-05 MIMO

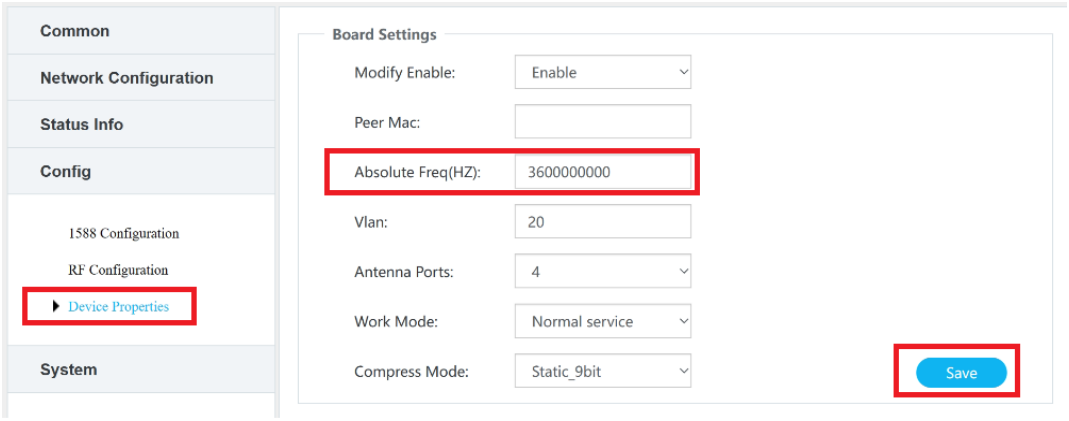
LIONS RU supports 4x4 or 2x2 MIMO so far.

1. Go to Config>Device Properties page, select 4 for 4x4 MIMO or 2 for 2x2 MIMO.
2. Click “Save” button for taking effect.



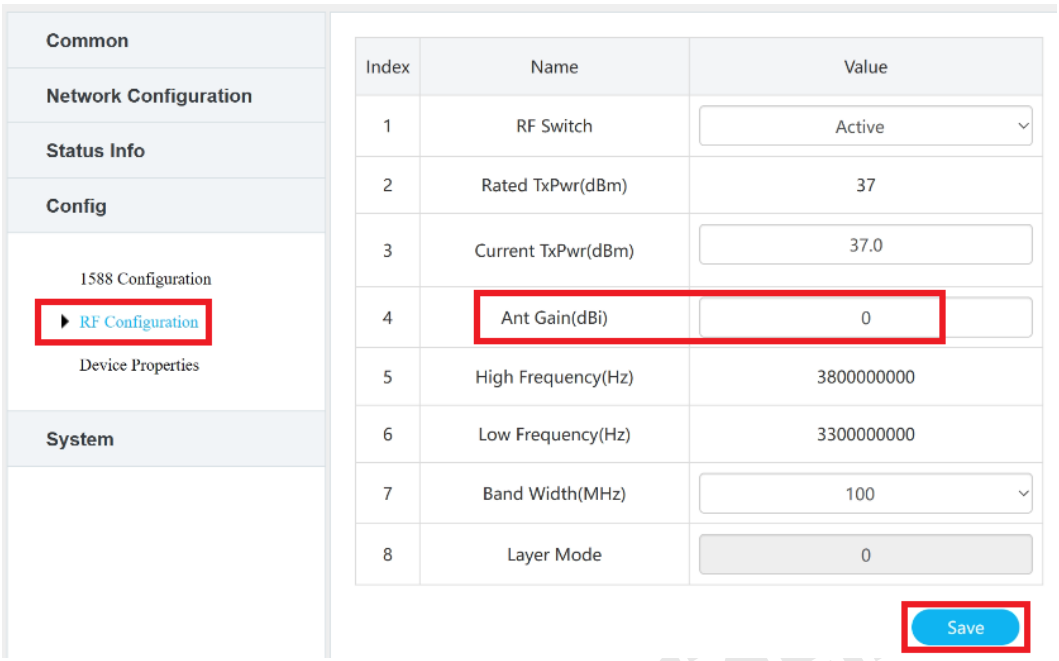
3.8 CU-06 Center Frequency (Hz)

1. Go to Config>RF Configuration page, key in the radio center frequency (Hz) in Center Frequency column.
2. Click “Save” button for taking effect.



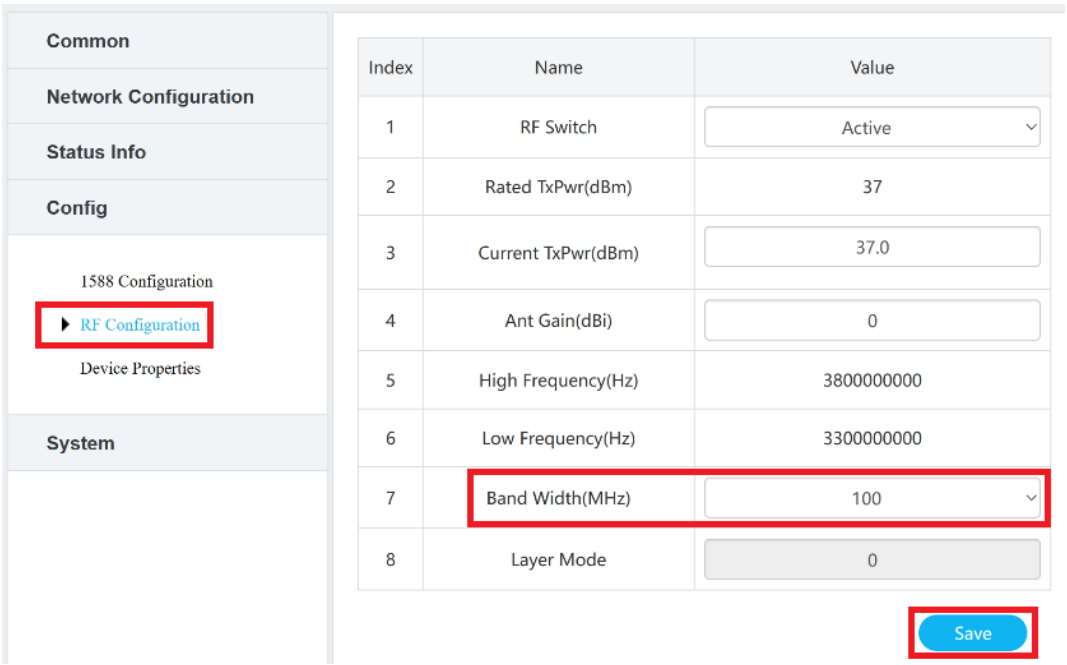
3.9 CU-07 Antenna Gain

1. Go to Config>RF Configuration page, key in the connected antenna gain (dBi) in Ant Gain column. If connect UE by conductive, key in 0.
2. Click “Save” button for taking effect.



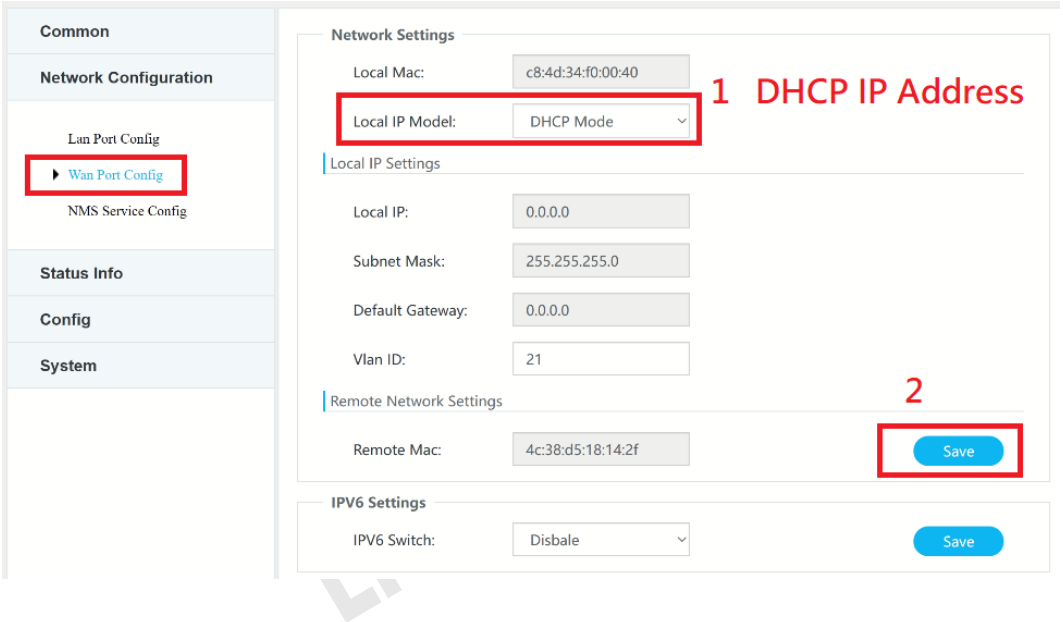
3.10 CU-08 Bandwidth

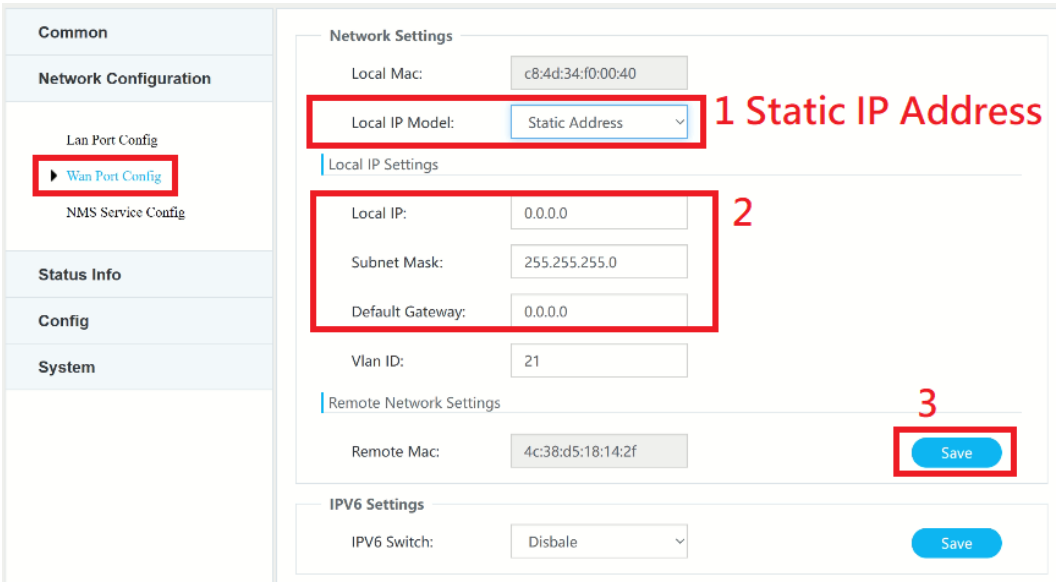
1. Go to Config>RF Configuration page, select a working bandwidth in Band Width (MHz) column.
2. Click “Save” button for taking effect.



3.11 M-01 RU IP Address for M-plane

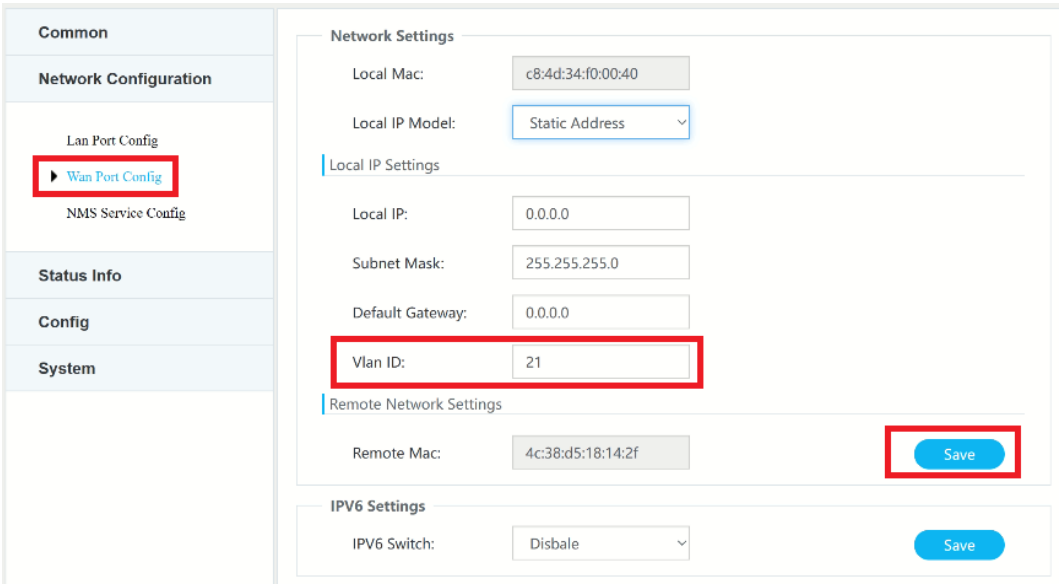
1. Go to Network Configuration>Wan Port Config page and in Local IP Model column, select DHCP Mode or Static Address. If select Static Address, Key in Local IP, Subnet Mask, and Default Gateway manually.
2. Click “Save” button for taking effect.





3.12 M-02 M-plane VLAN

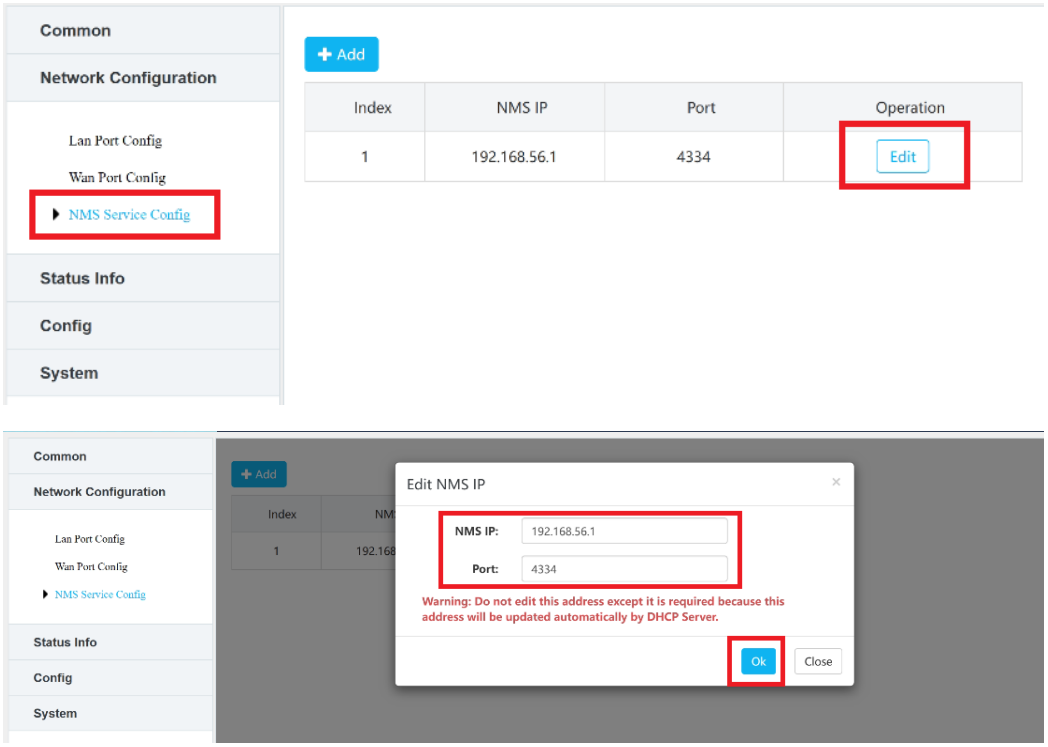
1. Go to Network Configuration>Wan Port Config and in VLAN ID column, key in VLAN ID for M-plane. If there is no VLAN for M-plane, key in 1 here.
2. Click “Save” button for taking effect.



3.13 M-03 NMS IP Address

If DHCP server with option43 is not available, you have to set NMS IP address manually.

1. Go to Network Configuration>NMS Service Config, click Edit button.
2. Key in NMS IP and port, then save it.



4. Troubleshooting Guide

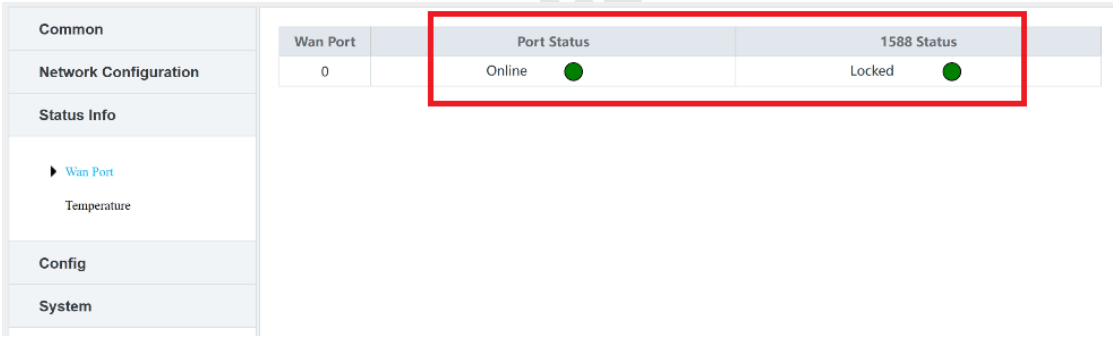
4.1 Check RU PTP Locked Status

1. Log in RU Web UI.
2. Go to Status Info>Wan Port, check the 1588 Status.

   If RU works as PTP Slave, the following includes status detail:

Port Status	GREEN	RU has received PTP packets.
	RED	RU has not yet received any PTP packet.
1588 Status	GREEN	RU is PTP locked.
	RED	RU is PTP unlocked.

Both status should be GREEN:



5. FCC Regulations

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.

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.

RF Exposure Information (MPE)

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure.
This equipment should be installed and operated with minimum distance 160 cm between the radiator & your body.

The product is to be installed according to the installation instructions. The User/Operator does not have access to the device once the device is installed and in use. This product is designed for specific application and needs to be installed by qualified personnel who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.