



COMPAL O-RU User Guide

COMPAL Outdoor O-RU – Cypress

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Version Record

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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.



1.2. SPF+ & LAN & AC Power Port



1. SFP+ Port : This port is used for fronthaul C/U/S/M-Plane. Plug in the accessory optical fiber to RU's SFP+ 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 .

1.3. Warning Statements

The 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 ; includes 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 A digital device , pursuant to part 15 of the FCC Rules ◦ These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment ◦ This equipment generates , uses , and can radiate radio frequency energy and , if not installed and used in accordance with the instruction manual , may cause harmful interference to radio communications ◦ Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense ◦

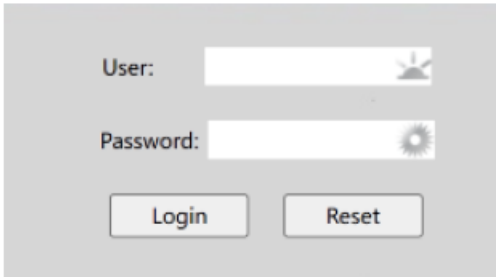
This device has been tested and meets applicable limits for Radio Frequency (RF) exposure ◦

This equipment should be installed and operated with minimum distance 80cm between the radiator & your body ◦

2. Login RU

2.1. Login 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>



User:

Password:

Login Reset

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

3. Set Parameters in RU

3.1. Overview of RU parameters

The following RU parameter 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 preferred 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 center 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 add°	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°

3.2. S-01 1588 Protocol Switch

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

3.3. 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 .

Index	Name	Value
1	domainNumber	24
2	priority1	128
3	priority2	128
4	masterOnly	0
5	G.8275.defaultDS.localPriority	128
6	G.8275.portDS.localPriority	128
7	maxStepsRemoved	255
8	logAnnounceInterval	1
9	logSyncInterval	-4
10	logMinDelayReqInterval	-4
11	hybrid_e2e	0

2. Press “Save” button for taking effect .

7	maxStepsRemoved	255
8	logAnnounceInterval	1
9	logSyncInterval	-4
10	logMinDelayReqInterval	-4
11	hybrid_e2e	0
12	inhibit_multicast_service	0
13	unicast_listen	0
14	unicast_req_duration	3600
15	dataset_comparison	G.8275.x
16	ptp_dst_mac	01:1b:19:00:00:00
17	network_transport	L2

Restore Default Values

Save

Caution:
Please keep the 1588 Protocol Parameter Setting as default values. Any change of the setting should be consulted to administrator.

3.4. 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 .

Common

Network Configuration

Status Info

Config

1588 Configuration

RF Configuration

► **Device Properties**

System

Board Settings

Modify Enable: Enable

Peer Mac:

Absolute Freq(HZ): 3600000000

Vlan: 20

Antenna Ports: 4

Work Mode: Normal service

Compress Mode: Static_9bit

Save

3.5. 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 .

Common

Network Configuration

Status Info

Config

1588 Configuration

RF Configuration

► **Device Properties**

System

Board Settings

Modify Enable: Enable

Peer Mac:

Absolute Freq(HZ): 3600000000

Vlan: 20

Antenna Ports: 4

Work Mode: Normal service

Compress Mode: Static_9bit

Save

3.6. CU-03 U-Plane Compress Mode

COMPAL 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 °

The screenshot displays the configuration interface for COMPAL RU. On the left, a sidebar menu includes 'Common', 'Network Configuration', 'Status Info', 'Config', and 'System'. Under 'Config', '1588 Configuration', 'RF Configuration', and 'Device Properties' are listed, with 'Device Properties' being the active selection. The main panel, titled 'Board Settings', contains the following fields: 'Modify Enable' (set to 'Enable'), 'Peer Mac' (empty), 'Absolute Freq(HZ)' (set to '3600000000'), 'Vlan' (set to '20'), 'Antenna Ports' (set to '4'), 'Work Mode' (set to 'Normal service'), and 'Compress Mode' (set to 'Static_9bit'). The 'Compress Mode' dropdown and the 'Save' button at the bottom right are both highlighted with red rectangular boxes.

3.7. CU-04 PRACH Compress Mode

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

3.8. CU-05 MIMO

COMPAL 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 ◦

The screenshot shows the 'Device Properties' configuration page. On the left sidebar, the 'Config' menu is expanded, and 'Device Properties' is selected. The main content area is titled 'Board Settings' and contains several configuration items: 'Modify Enable' (set to 'Enable'), 'Peer Mac' (empty), 'Absolute Freq(HZ)' (3600000000), 'Vlan' (20), 'Antenna Ports' (set to 4), 'Work Mode' (Normal service), and 'Compress Mode' (Static_9bit). The 'Antenna Ports' dropdown is highlighted with a red box. A blue 'Save' button is located at the bottom right, also highlighted with a red box.

3.9. 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 ◦

The screenshot shows the 'Device Properties' configuration page, which is identical to the one in section 3.8. The 'Antenna Ports' dropdown is still set to 4. However, the 'Absolute Freq(HZ)' field is now highlighted with a red box, indicating it is the focus for this section. The 'Save' button remains at the bottom right, also highlighted with a red box.

3.10. 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 .

Common		
Network Configuration		
Status Info		
Config		
1588 Configuration		
▶ RF Configuration		
Device Properties		
System		

Index	Name	Value
1	RF Switch	Active
2	Rated TxPwr(dBm)	37
3	Current TxPwr(dBm)	37.0
4	Ant Gain(dBi)	0
5	High Frequency(Hz)	3800000000
6	Low Frequency(Hz)	3300000000
7	Band Width(MHz)	100
8	Layer Mode	0

Save

3.11. 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 .

Common		
Network Configuration		
Status Info		
Config		
1588 Configuration		
▶ RF Configuration		
Device Properties		
System		

Index	Name	Value
1	RF Switch	Active
2	Rated TxPwr(dBm)	37
3	Current TxPwr(dBm)	37.0
4	Ant Gain(dBi)	0
5	High Frequency(Hz)	3800000000
6	Low Frequency(Hz)	3300000000
7	Band Width(MHz)	100
8	Layer Mode	0

Save

3.12. 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 .

The screenshot shows the 'Wan Port Config' page under 'Network Configuration'. The 'Local IP Model' is set to 'DHCP Mode'. The 'Local IP Settings' section shows 'Local IP' as 0.0.0.0, 'Subnet Mask' as 255.255.255.0, and 'Default Gateway' as 0.0.0.0. The 'Vlan ID' is 21. The 'Remote Network Settings' section shows 'Remote Mac' as 4c:38:d5:18:14:2f. The 'IPV6 Settings' section shows 'IPV6 Switch' as 'Disbale'. The 'Save' button is highlighted with a red box and the number 2.

3.13. M-02 M-Plane VLAN

1. Go to Network Configuration > Wan Port Config page 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 .

The screenshot shows the 'Wan Port Config' page under 'Network Configuration'. The 'Local IP Model' is set to 'Static Address'. The 'Local IP Settings' section shows 'Local IP' as 0.0.0.0, 'Subnet Mask' as 255.255.255.0, and 'Default Gateway' as 0.0.0.0. The 'Vlan ID' is 21. The 'Remote Network Settings' section shows 'Remote Mac' as 4c:38:d5:18:14:2f. The 'IPV6 Settings' section shows 'IPV6 Switch' as 'Disbale'. The 'Save' button is highlighted with a red box.

3.14. 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 .

The screenshot shows the 'NMS Service Config' page. On the left, a sidebar menu has 'NMS Service Config' highlighted with a red box. The main area features a table with columns: Index, NMS IP, Port, and Operation. The first row contains the values 1, 192.168.56.1, and 4334. The 'Operation' column for this row contains an 'Edit' button, which is also highlighted with a red box. Above the table is a '+ Add' button.

Index	NMS IP	Port	Operation
1	192.168.56.1	4334	Edit

The screenshot shows the 'Edit NMS IP' dialog box. It has two input fields: 'NMS IP' with the value '192.168.56.1' and 'Port' with the value '4334'. Both fields are highlighted with a red box. Below the fields is a warning message: 'Warning: Do not edit this address except it is required because this address will be updated automatically by DHCP Server.' At the bottom right, there are 'Ok' and 'Close' buttons, with the 'Ok' button highlighted by a red box.

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 packets
1588 Status	GREEN	RU is PTP locked
	RED	RU is PTP unlocked

Both status should be GREEN

