# **COMMISSIONING GUIDE**

# E62-M3-L

# **MID POWER**

4 Bands SISO
Up to 39dBm per Band
Up to 200MHz IBW
5G NR Compliant
Passive Cooling
Outdoor Rated

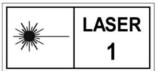


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# **Revision History**

Revision Number	Revision Date	Summary of Changes	Author	SW Ref
1.0.0	4 <sup>th</sup> Jan 2023	New Format	Gabriel Kollat	Build01
1.0.1	23 <sup>rd</sup> April 2023	Add User Management Update some screenshots Update Quick Viewer Feature Refresh some screenshots of OMT	Gabriel Kollat	Build10
1.0.2	16 <sup>th</sup> June 2023	Update Software Upgrade Section	Gabriel Kollat	Build10
1.0.3	18 <sup>th</sup> August 2023	Replace system connection with high resolution image Add note of ACM not supporting hot swap in chapter of "Gain Adjustment on A3 (Active Combiner)"	Gabriel Kollat	Build10

The socket-outlet shall be installed near the device and shall be easily accessible.



The equipment is recommended to use the class I laser module.

This device must be professionally installed.

This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC License to operate this device. You MUST register Class B signal Boosters (as defined in 47 CFR 90.219) online at www.fcc.gov/signal-boosters/registration. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.

To comply with FCC RF exposure compliance requirements, each individual antenna used for this transmitter must be installed to provide a separation distance greater than 220cm or more from all persons during normal operation and must not be co-located with any other antenna for meeting RF exposure requirements.

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.



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# **Pre-Commissioning**

Before starting the commissioning process, verify the status of the equipment as follows:

## Access Unit (A3)

- 1 . Verify that the correct band-specific Active Combiner modules are installed.
- 2 . Ensure the RF cables between the BTS and modules are connected as designed.
- 3 . Ensure the fibers are connected to the proper optical ports as designed.
- 4 . Check LED of Status and Optical ports.

## **Expansion Unit (E3-0)**

- 1. Ensure the optical transceivers are inserted and fibers are connected to the proper optical ports as designed.
- 2 . Check LED of Status and Optical ports.

#### Remote Unit (E62-M3-L)

- 1. Verify that the correct band-specific PA modules are installed.
- 2. Ensure the RF cables from each PA module are connected tightly.
- 3 . Ensure the optical transceivers are inserted and fibers are connected to the proper optical ports as designed.
- 4 . Check LED of Status and Optical ports.

#### **A3 Optical Indicator Descriptions**

Each optical interface indicator shows the operating status of an optical module, as shown in Figure 2.



Figure 1. A3 - Optical Indicators 1



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Optical Indicator	Description
Green	Normal
Red	The optical path is not synchronized.
Blank	Optical module is not plugged in

Figure 2. A3 - Optical Indicators 2

## **A3 Status Indicator Descriptions**

Each element has its own LED STATUS indicator to show its operating status.



Figure 3. A3 - Status Indicator

Status Indicator	Description
Flash Green	Element is working without over-temperature alarm
Flash Red	Element is working but with over-temperature alarm
Flash Orange	Software is upgrading
Solid Orange	Element is booting

## **E3-O Optical Indicator Descriptions**

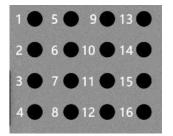
Each optical interface indicator shows the operating status of an optical module, as shown in Figure 5.



Figure 4. E3 - Optical Indicators 1



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Optical Indicator	Description
Green	Normal
Red	The optical path is not synchronized.
Blank	Optical module is not plugged in

Figure 5. E3 - Optical Indicators 2

## **E62-M3-L Optical Indicator Descriptions**

Each optical interface has corresponding indicator to show the operating status of an optical module, as shown in Figure



Figure 6. E62-M3-L - Optical Indicators 1



Figure 7. E62-M3-L - Optical Indicators 2

Optical Indicator	Description
Green	Normal
Red	The optical path is not synchronized.
Blank	The Optical module is not plugged in



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## **E62-M3-L Status Indicator Descriptions**

Each element has its own LED STATUS indicator to show its operating status.



Figure 8. E62-M3-L - Status Indicator

Status Indicator	Description
Flash Green	Element is working without over-temperature alarm
Solid Green	The system is booting Software is upgrading
Flash Red	Element is working but with over-temperature alarm
Blank	The Run Led Switch on OMT is disabled



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# **System Overview**

E62-M3-L (Mid Power Remote Unit 3rd Generation) system is a distributed antenna system (DAS). It consists of Access Unit (A3), Expansion Unit (E3-O), and Remote Unit (E62-M3-L). The Expansion Unit is an optional unit that can expand the system capacity.

#### **System Connection**

A typical E62-M3-L system connection is shown in Figure 9.

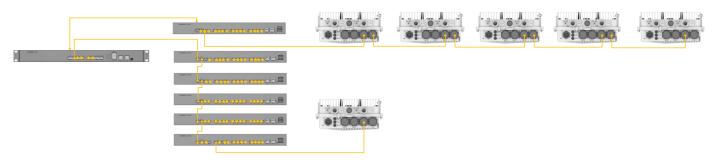


Figure 9. System Connection

- E62-M3-L system needs 1 Primary A3 and 1 Secondary A3 to support 4 bands of the E62-M3-L.
- Cascading 5 levels of E3-O
- Cascading 6 levels of E3-O + E62-M3-L. For example it can cascade 3 E3-O and 3 E62-M3-L in one optical path.



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# **Operation and Maintenance Terminal**

The Operations and Maintenance Terminal (OMT) software runs on all devices in the Everon 6200 system. WebOMT is the interface for OMT. WebOMT is based on a web browser and is compatible with most common browsers such as EDGE and Google Chrome. WebOMT is customized for Everon 6200 to query, console, and configure parameters on devices.

The Primary A3 is generally set as the Host of the system. Meanwhile, technicians can access the whole system through the WebOMT of any device (Primary or Secondary A3, E3-O and E62-M3-L) connected in the system.

## Access to the OMT on the Primary A3

In the Everon 6200 system, the Primary A3 is defined as Host. The default IP address of the A3 is https://10.7.3.200.

To set up wired access to the OMT:

- 1. Connect a PC to the Primary A3 with a network cable in the CONSOLE port on the front panel.
- 2. Change the TCP/IP properties:
  - a. Click Network Connections
  - b. Click Local Area Connection Properties
  - c. Click TCP/IP Properties
  - d. Change parameters as indicated:

IP address: 10.7.3.1 (the last number is changeable except for 10.7.3.200)

Subnet mask: 255.0.0.0

Default Gateway: 10.7.3.200 (IP address of Primary A3)

- 3. Check the status of the Local Area Connection and confirm the connection.
- 4. Open a browser window and enter the default gateway in the navigation bar to access the WebOMT page. Figure 11 shows an example using https://10.7.3.200 as the default gateway.



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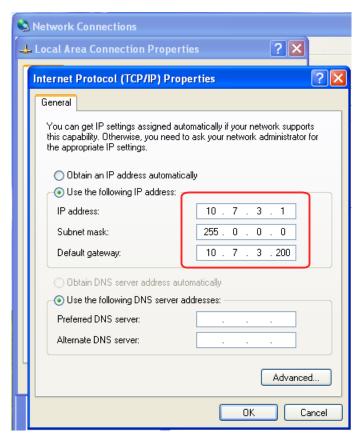


Figure 10. Wired Connection to the OMT on the Primary A3



Figure 11. Web Browser OMT Connection for Wired Access



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#### Access to the OMT on the Sub Devices

In the Everon 6200 system, E3s and the Secondary A3s and E62-M3-L, are defined as Sub devices. They have no fixed IP address. The IP addresses are assigned by the host automatically, based on the network topology.

To set up wired access to the OMT:

- 1. Connect a PC to the Secondary device with a network cable in the CONSOLE port on the bottom of E62-M3-L.
- 2. Change the TCP/IP properties:
  - a. Enable Obtain an IP address automatically by clicking the check box.
  - b. Enable Obtain DNS server address automatically by clicking the check box.
- 3. Check the status of the Local Area Connection and confirm the connection.
- 4. Open a browser window and enter the default gateway in the navigation bar to access the WebOMT page. The default fixed IP address is <a href="https://12.7.1.1">https://12.7.1.1</a> as the default gateway.

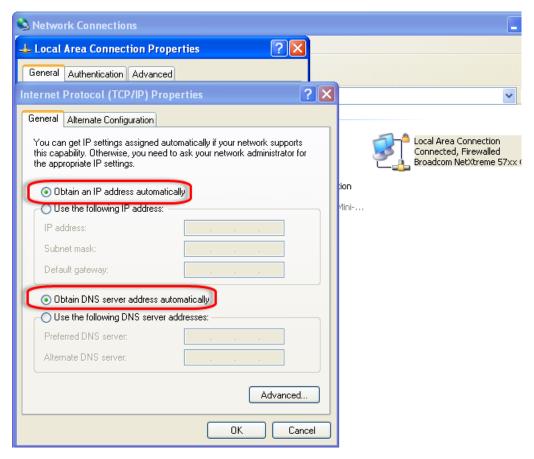


Figure 12. TCP/IP Properties Configuration – Sub devices



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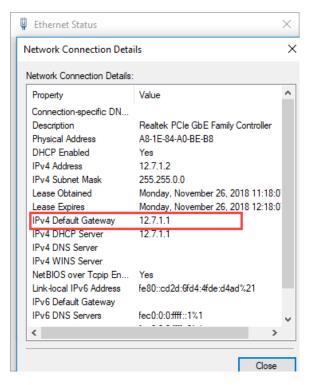


Figure 13. Wired Connection to the OMT on the Sub device



Figure 14. Web Browser OMT Connection for Wired Access



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#### **User Login**

- 1. Enter the IP address of the OMT you are trying to access.
- 2. Type the username and password in the field.

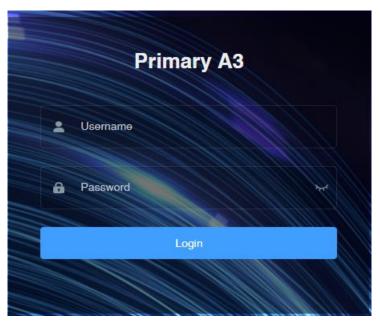


Figure 15. Login Screen

Account	Password	Access Level
admin	admin (default)	Fully administration permissions. (User Management)
Others	(null)	Installer, configuration, monitoring

<u>Note</u>: Only the **admin** account has the permission of user management, including creating a user profile, changing password.



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#### **Homepage and Basic Functions**

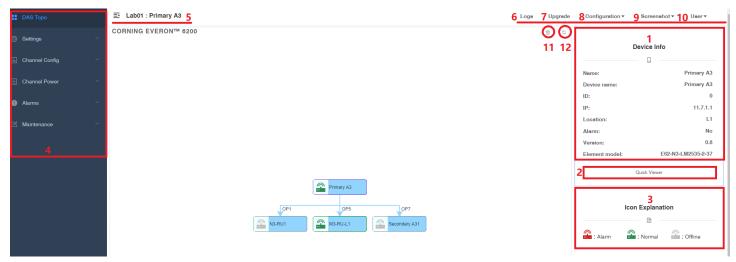


Figure 16. WebOMT Homepage

The OMT homepage includes System Topo, tabs, and fields (refer to corresponding numbers in Figure 16):

- 1. **Device Info:** After clicking to select the element's icon in DAS Topo, it shows Element Type, Element Name, ID, Internal IP address, Location and status.
- Quick View: After clicking to select the element's icon in DAS Topo, click Quick View to switch to the element's OMT in the new tab.

**Note:** Quick View duplicates the Primary A3 Web GUI and loads the information obtained from sub elements. Compared with previous software, there is no Port Jump and Route Jump any more, regarding the security of IP forwarding.

- 3. **Icon Explanation:** Shows that device icons in the topology have 3 colors to display different statuses.
- 4. **Element Configuration:** Tabs that access the page for parameter configuration and query.
- 5. **Title Column:** "Site Name: Device Name" constitutes the Title Column. The "Site Name" can only be configured on Primary A3 and the assigned to all sub devices under it. The Device Name" can be configured on each elements.
- 6. Logs: Records the operating status of the devices. The logs can be downloaded and deleted on the Logs page.
- 7. **Upgrade:** Used to upgrade the software.
- 8. **Configuration:** Used to save and load factory or engineering configuration files(.json) and carrier configuration files(.csv).
- 9. **Screenshot:** One step to download all current parameters, information, and device operating status. When Corning assistance is required to troubleshoot the system, it will be helpful to send the Screenshot files(.pdf) to Corning technicians.
- 10. User: Account management and logout
- 11. Remove Sub devices: used to remove all Sub devices in Topo when turn on the Factory Mode switch(Go to Maintenance -> Factory Command and turn on the Factory Mode switch)



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12. Refresh: refresh DAS Topo

#### **System Topology**

System Topology is set as the default homepage of OMT. Using the following steps to display the System Topology:

- 1. Select the DAS Topo tab.
- 2. Click Refresh to display Topology.

The system topology is shown in Figure 17. The Primary A3 icon is on the top of the frame as host. Lower level elements are placed as a tree structure based on the physical optical connections. Except for the Primary A3, all other sub devices are named after the optical ports they are connected to.

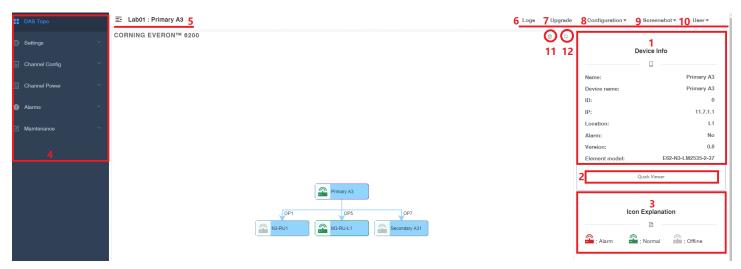


Figure 17. Displaying the System Topology

Device icons in the topology have 3 colors — Green, Grey and Red:

Green icon with green box line: indicates this element is connected and online without alarm.

Grey icon with grey box line: indicates this element was once connected but is currently disconnected.

Red icon with red box line: indicates this element has an alarm.

The device icon with purple box line indicates which element's OMT user is logged in.

When a grey icon shows up, check whether this device exists or not. If the device does not exist anymore, delete the device in the DAS Topo page.

<u>Note</u>: deleting one device or all Sub devices must be under <u>Factory Mode</u>. Access <u>Factory Mode</u> through <u>Maintenance</u> -> <u>Factory Command</u> -> <u>Factory Mode</u>. Enable the mode and click <u>Set</u> to validate it.



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#### **Operation Bar**

OMT has an Operation Bar on each page for configuration and query. The Operation Bar also has a button to enable or disable to display the parameter ID and range.

- 1. Query: check the box of cetain parameter and click Query button, than you can query the parameter.
- 2. **Set**: check the box of certain parameter and enter the appropriate values, than click **Set** button to save the settings.
- 3. **Clear**: check the box of certain parameter and click **Clear** button, than you can clear the settings.
- 4. Query all: click Query all button than you can query all the parameters in the OMT.





Figure 18. Operation Bar

#### **Quick Viewer**

1. Select the Sub Device and click the Quick Viewer button to navigate to the Sub Device' OMT.



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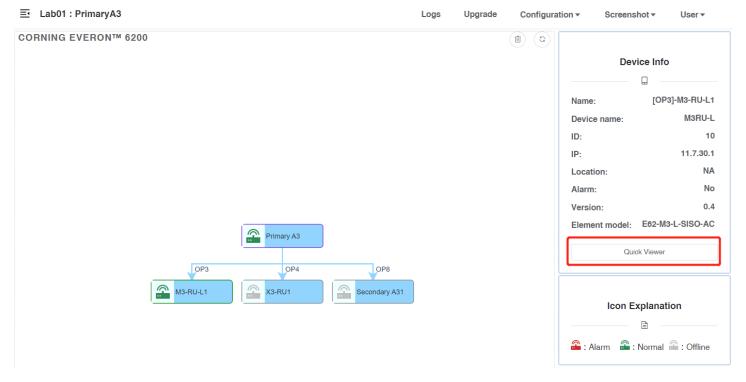


Figure 19. Quick Viewer Button

2.But can only do Set and Query operations on the Sub devices.

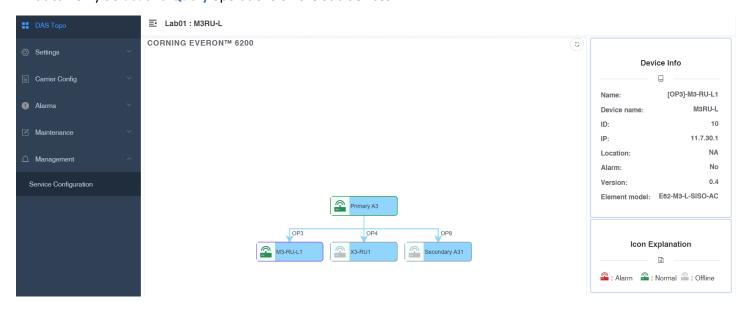


Figure 20. Sub Device's OMT



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# **User Management**

## **Admin User Management**

Only can do the <u>User Management</u> on the Primary A3 Web GUI with <u>admin</u> account. Other sub devices cannot support User Management.

1. Click <u>User button</u> on the top right of homepage and click <u>User</u> in the drop-down box to navigate to the <u>User</u> Management Page.

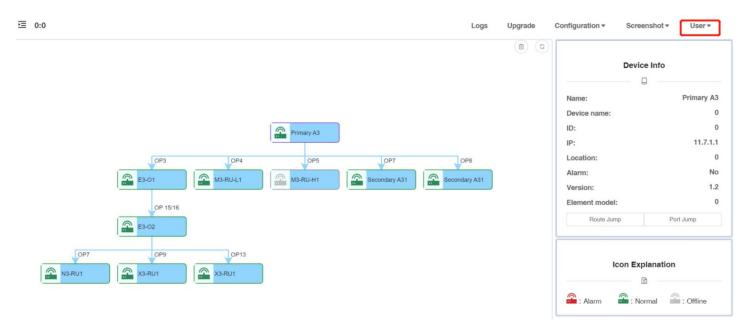


Figure 21. Admin User Management

2. If using the admin account with default password to login the OMT on the Primary A3, a prompt window will pop up by clicking <u>User</u>.

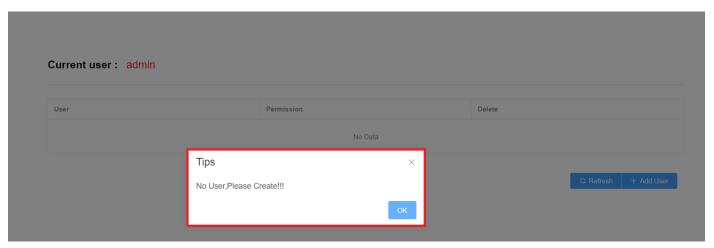


Figure 22. Add Admin User with New Password 1



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3. Click **OK** and Click **Add User** to change the password of admin account.

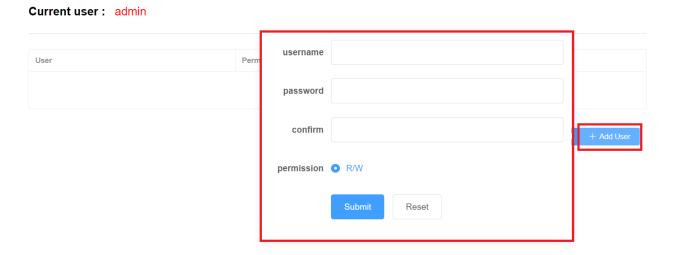


Figure 23. Add Admin User with New Password 2

4. Enter username/password/confirm and click Submit button to change the password of admin account.

An example is as follows:

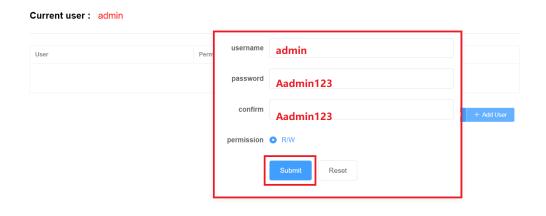


Figure 24. Add Admin User with New Password 3

#### **Password Rules:**

1) Password length shall be 8~12 characters.



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Figure 25. Password Rules 1

2 Password must contain 3 of 4 features that uppercase&lowercase alphabetic characters are required and can pick numeric or special characters(!,@,\_).

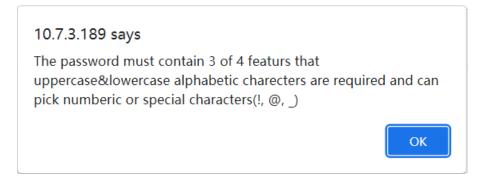


Figure 26. Password Rules 2

5. Then admin account with new password is created.

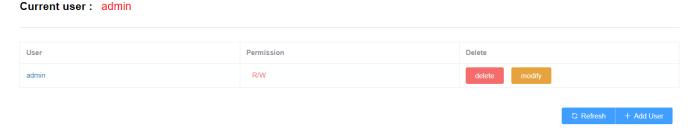


Figure 27. Admin User with new Password Created

**Note:** ①The admin account cannot be deleted by clicking **delete** button once created.



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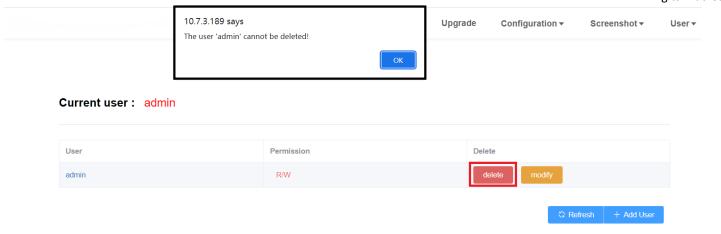


Figure 28. Admin User Management Note 1

2) The password can be modified by clicking modify button.

The new password shall follow the password rules.

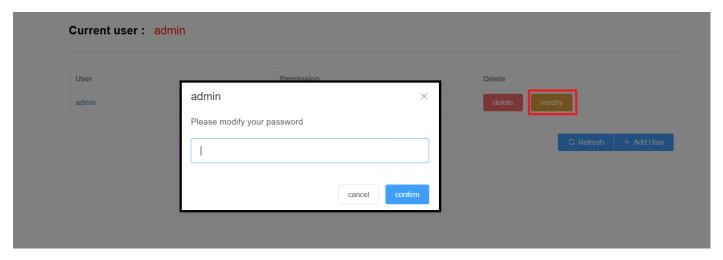


Figure 29. Admin User Management Note 1

6. Click User button and click Log Out in the drop-down box to log out.



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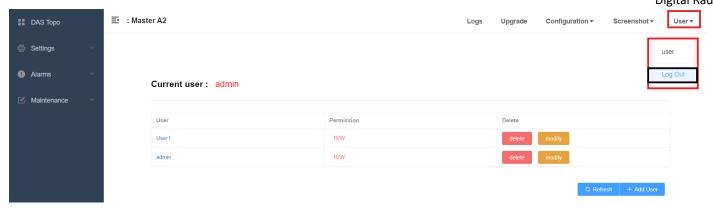


Figure 30. Admin User Log-out

#### **Other User Management**

One Master Primary A3 can support maximum **5 Users**.

1. Only creating admin account with new password, other users can be created. Click Add User to create new user.

Current user: admin

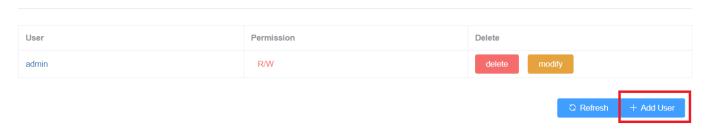
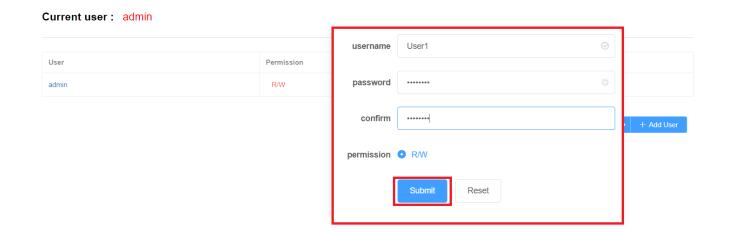


Figure 31. Add New User 1

2. Enter username/password/confirm and click Submit button to change the password of admin account.





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Figure 32. Add New User

#### 3. A new user is created.

Current user: admin



Figure 33. New Use Added successfully

**Note:** 1 The user account can be deleted by clicking **delete** button once created.



Figure 34. Delete Other User

2) The password can be modified by clicking modify button.

The new password shall follow the password rules.



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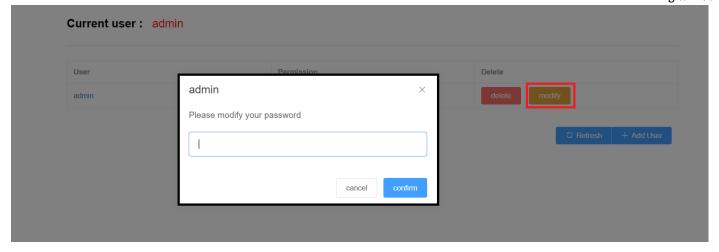


Figure 35. Modify User Password

4. Click User button and click Log Out in the drop-down box to log out.

# **Network & Communication Settings**

#### **CONSOLE IP Settings**

The CONSOLE port of the Primary A3 is pre-assigned from the factory with the default IP address – 10.7.3.200. To enable local access to the system, you must assign a unique routable address within the domain of the local/wide-area- network.

Configure the IP address of the CONSOLE port as follows:

- 1. Log in the Primary A3 OMT, and go to the LAN Connectivity section.
- 2. Go to the IP Settings section and assign the following fields as appropriate:

<u>Device IP Addr1(CONSOLE)</u> - address assigned to the A3 for local access.

Subnet Mask1(CONSOLE)

3. Click Set to save the settings.



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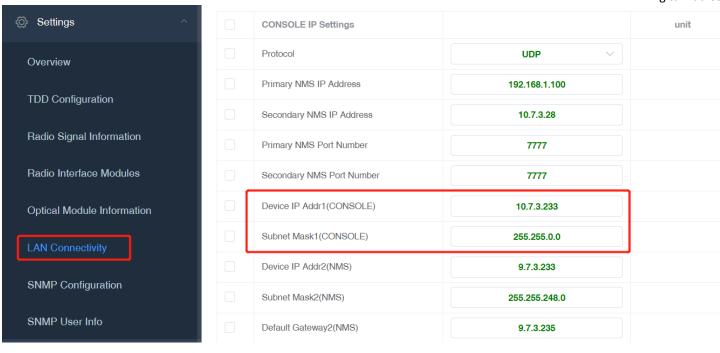


Figure 36. CONSOLE IP Address Configure



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#### **NMS Configuration**

Corning Network Management System (NMS) is a software system to achieve remote monitoring, alarm reporting, and remote configuration of all the devices.

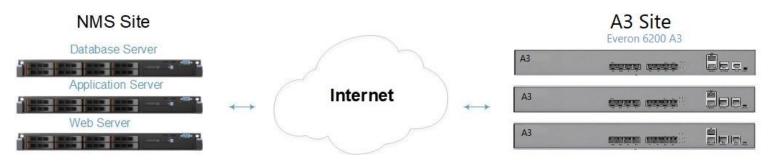


Figure 37. NMS System Architecture

Use the following steps to configure NMS IP settings.

The NMS port of the Primary A3 is pre-assigned from the factory with the default IP address – 9.7.3.200. To enable remote access to the system, you must assign a unique routable address within the domain of the local/wide-area network.

Configure the IP address of the NMS port as follows:

- 1. Log in the Primary A3 OMT, and go to the LAN Connectivity section.
- 2. Go to the IP Settings section and assign the following fields as appropriate:

NMS IP Address - The target IP address of NMS Server.

NMS Port Number - The target port of NMS Server (default defined port of 80).

<u>Protocol</u> - The Everon 6200 system supports SNMP (Get & Set, Trap, etc.) and Corning NMS for remote monitoring.

Device IP Addr2(NMS) - address assigned to the A3 for NMS remote access.

Subnet Mask2(NMS)

Default gateway2(NMS)

Device Recv Port (UDP) - The Port number assigned for communication with Corning NMS.

Heartbeat Interval - The interval in which the Primary A3 sends a heartbeat to the surveillance server.

3. Click **Set** to save the settings.



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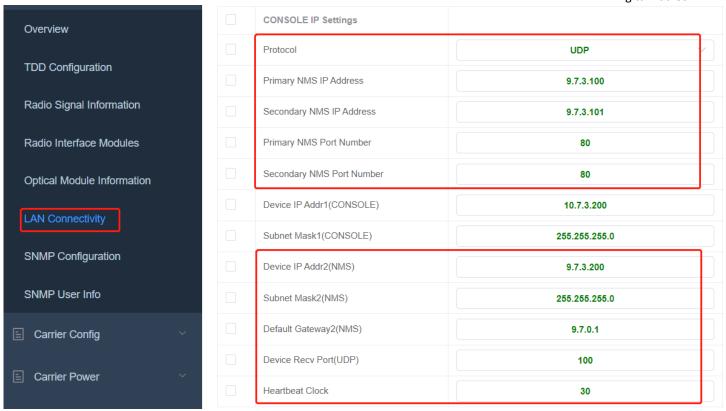


Figure 38. NMS Configuration

#### **SNMP Configuration**

The Primary A3 generates SNMP traps and delivers them through the NMS Ethernet interface.

The Everon 6200 system supports SNMP V2 and V3 in this current version.

To configure SNMP settings:

- 1. Log in the Primary A3 OMT, and go to the **SNMP Configuration** section.
- 2. Go to the IP Settings section and select the SNMP protocol, as shown in Figure 38.
- 3. Click **Set** to save the setting.
- Go to the SNMP Configuration section and select the appropriate SNMP Trap Protocol, as shown in Figure 39.
   SNMP Trap Protocol The trap protocol to send the SNMP trap.



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Figure 39. SNMP Trap Protocol

5. Locate the fields and set the appropriate values:

Protocol:SNMP

SNMP Trap Protocol:SNMPV2,SNMPV3

<u>Trap IP Address (1~10)</u>: Up to 10 target IP addresses of SNMP trap receiver.

<u>Trap Port</u>: The target port of the SNMP trap (default defined port of 162).

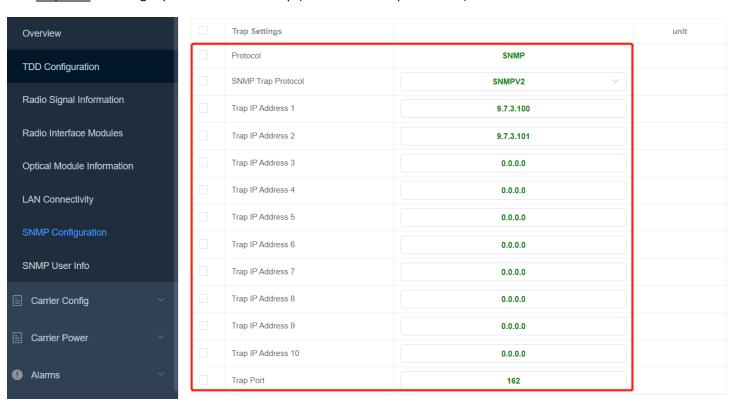


Figure 40. SNMP Trap Settings

For SNMP V3 USM (See Figure 24 for details)

Reset USM - USM Reset

SNMPv3 User Apply - Apply the SNMPv3 USM User 1~10



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#### <u>User Delete</u> – Delete the selected User info

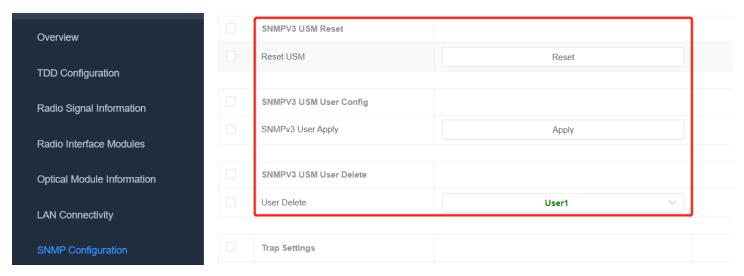


Figure 41. SNMP USM Settings 1

6. Go to Settings - SNMP User Info to modify the SNMP USM User 1~10

Security Username - Security User Name

<u>Authentication Protocol</u> - Authentication Protocol

<u>Authentication Password</u> - Authentication Password

Privacy Protocol - Privacy Protocol

Privacy Password - Privacy Password

Edit User Confirm - Edit User Confirm

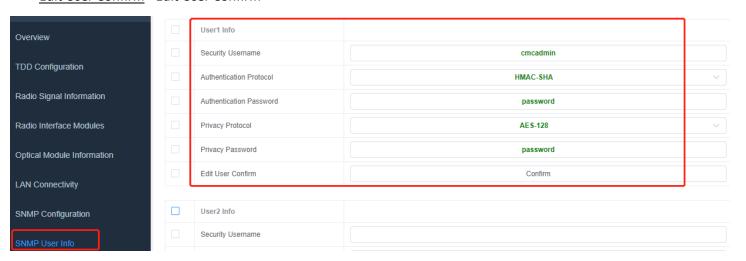


Figure 42. SNMP USM Settings 2

7. Go to the Trap Resend section at the bottom of the page.



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<u>Trap Resend Enable</u>: **On / Off** to enable / disable trap resend.

<u>Trap Resend Interval</u>: The interval time to resend the SNMP trap.

**Community:** Community Identifier.

Delete History Alarm: Click **Confirm** to delete history alarms.

8. Click **Set** to save the settings.

Trap Resend		unit
Resend Enable		
Resend Interval	30MIN V	
Community	public	
Delete History Alarm	Confirm	

Figure 43. Trap Resend

Note: Trap IP address (1-10) is corresponding to user1-10 target receiver IP address.

Note that the Write/Read Community in SNMP server to communicate with Everon 6200 Device is 'Community + Device Sub ID'. For example, the default community is 'public' and the Device Sub ID of Primary A3 is '0'. SNMP Server must use 'public0' to communicate with Primary A3.

#### **Additional Settings**

#### **Site Info**

- Log in the Primary A3 OMT, and go to the Overview.
- 2. Locate the fields and set the appropriate values:

<u>Device ID</u> - Unique hexadecimal number used to identify the site, default <u>00000000</u>.

<u>Device Sub ID</u> - Device number in a single system, auto-assigned by Primary A3 or manually set by the user.

<u>Installed Location Label:</u> The detailed device installation location.

Site Name - Indicates the details of the current site.

<u>Device Name - The detailed device Name.</u>

Click Set to save the setting.



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Figure 44. Site Info Configuration

Note: The Installed Location and Site Name labels cannot contain the following special characters: %, &, ', ", \

4. The **Title Column** of the OMT is "<u>Site Name</u>: <u>Device Name</u>" The "Site Name" can only be configured on Primary A3 and the "Site Name" on Primary A3 will be assigned to all sub devices under it. The "Device Name" can be configured on each elements.

Go to Settings - Overview page to set the Site Name and Device Name.



Figure 45. Site Info Configuration

Then the **Title Column** of the OMT page will be refreshed automatically.

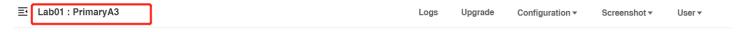


Figure 46. Title Column



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#### Time Synchronization/NTP

The Primary A3 synchronizes time to NTP time servers when NTP Switch is on .

- 1. Log in the Primary A3 OMT, and go to Settings ->LAN Connectivity
- 2. Go to the NTP section and Turn on the NTP Switch
- 3. Input NTP Update Interval in certain time horizon and select the appropriate Time Zone
- 4. Input NTP IP Address and Click Set to save the settings.

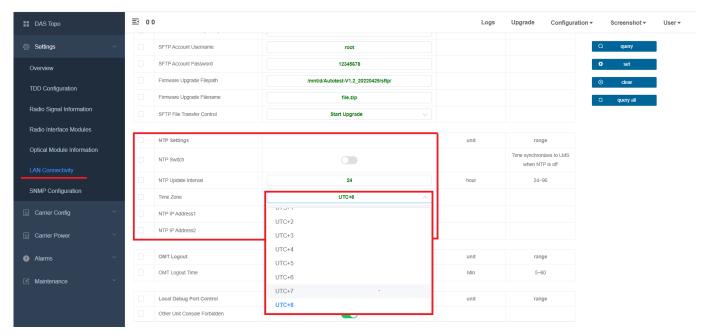


Figure 47. NTP Configuration

The Everon 6200 system also uses a local timeclock on Primary A3 to create time stamps for locally generated alarms when not connected to the NTP Server.

- **5.** Log in the Primary A3 OMT, and go to the **Overview**.
- 6. Go to the Date and Time section at the bottom of the page and click Query to check the current setting.
- 7. Click <u>now</u> to synchronize the system time with the local PC time.



Figure 48. Time Synchronization

Note: If the NMS is connected to the NTP server, the Everon 6200 system time is updated automatically and periodically.



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# **System Configuration**

#### A3 Band and Channel Configuration

A3 supports **Band Selective Mode** and **Channel Selective Mode**, each AU-AC Module can support up to 4 carriers. According to the different base station operating frequency bands for each operator, select the active RF modules for the A3 and passive RF modules for the E62-M3-L with the corresponding frequency band. Then set Carrier Properties for each module in the OMT of the Primary A3. The limits of the uplink and downlink operating frequency bands correspond to the effective RF range of the selected RF modules.

To set the Carrier properties for Module 1~4:

- 1. Login to the Primary A3 OMT
- 2. Go to Carrier Config -> System Signal Info.
- 3. Set the Start Carrier Config to modify the carrier information in #1

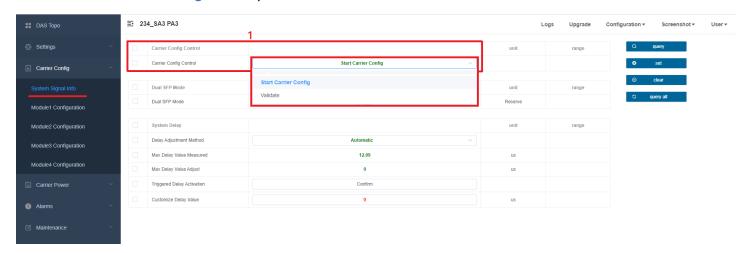


Figure 49. Carrier Properties - Star Carrier Config

4. For Module 1~ 4, each Module can support carrier 1~ 4 configuration. For each carrier, turn on the **Carrier Switch** in #4. Set the **Uplink and Downlink Centre Frequencies** in #2.

<u>Note</u>: <u>Digital Signal Bandwidth</u> per module shall not exceed 200 MHz. The total <u>System Transmission Bandwidth</u> for Primary and Secondary A3 shall not exceed 1200 MHz.

- 5. Click **Set** in operation bar.
- 6. Set the <u>Digital Signal Bandwidth</u> in #3, click the drop-down box to choose the Band Selective or Channel Selective mode. For <u>Band Selective Mode</u>, click <u>custom</u> and enter the bandwidth(@1MHz step) in the right box as shown in Figure 27. For <u>Channel Selective Mode</u>, click the bandwidth in the drop-down box as shown in Figure 28.



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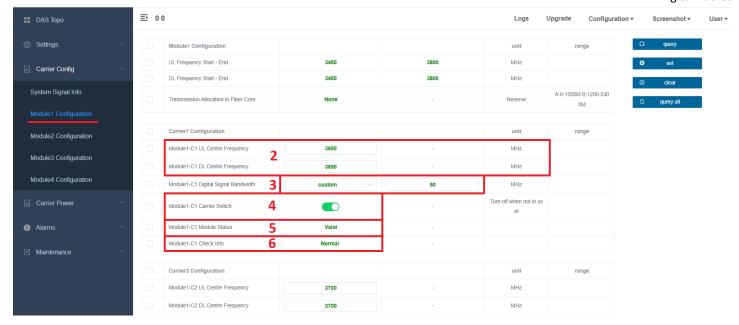


Figure 50. Carrier Properties - Band Selective Mode

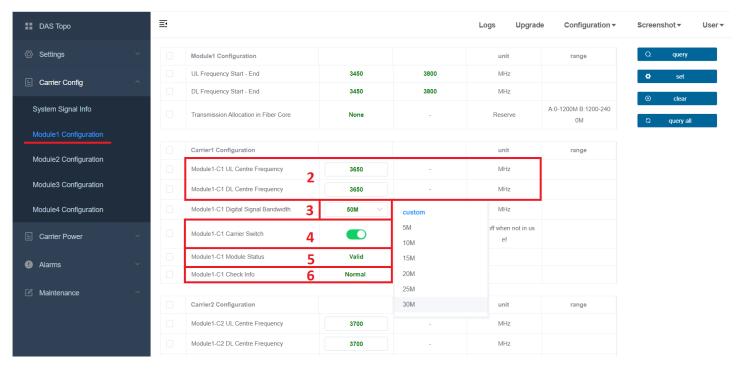


Figure 51. Carrier Properties – Channel Selective Mode

<u>Note</u>: For Band Selective Mode, bandwidth per carrier shall not exceed 100MHz. For Channel Selective mode, the bandwidth is 5/10/15/20/30/40/50/60/70/80/90/100 MHz.



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Click Set in the Operation Bar and go to the System Info to set the Validate Carrier Config to validate the carrier configuration in #1.

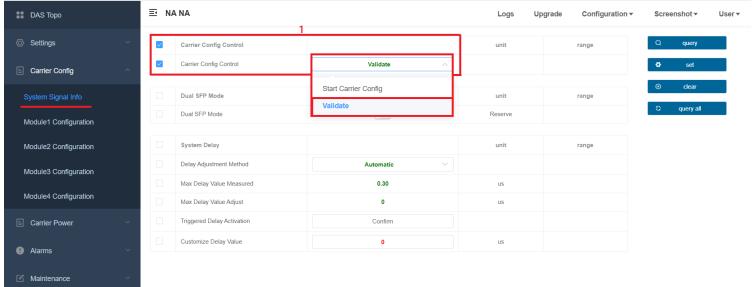


Figure 52. Carrier Properties - Validate Carrier Config

8. Then click Query all in the Operation Bar to ensure the value of Carrier 1~4 in Module 1~4 status is Valid (see in #5) and the value of Check info is Normal(see in #6).

**Note:** The **Check Info** is a hint for Carrier Configuration.

Normal: The Carrier Configuration is valid. Only when the value of Check Info is Normal, the Carrier Config is valid.

Switch off: Not turn on the Carrier Switch, the Carrier Config is invalid. Please turn on the switch than do the configuration.

**Carrier span over 200M**: The total bandwidth of 4 carriers in one Module can not exceed 200MHz. If the bandwidth of Carrier 1/2/3/4 is 100M/100M/20M/20M, the total bandwidth of 4 Carriers exceeds 200MHz.

**Beyond fiber resource:** The fibre resource is over the setting value. The Check Info of carrier configured incorrectly is Beyond fiber resource.

**System carrier configuration failed:** When carrier configuration of the whole system is failed, for the carrier configured correctly, the Check Info is System carrier configuration failed. And the Check Info of carrier configured incorrectly is Carrier span over 200M or Beyond fibre resource.

#### **5G TDD Configuration**

To configure 5G TDD properties:

- 1. Open the A3 OMT
- 2. Go to Settings -> TDD Configuration



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- Turn on the TDD Switch in #1
- 4. Select the corresponding TDD modules in #2
- 5. Input the 5G SSB Type in #3. Everon 6200 is supporting Case A and Case C.
- 6. Input whole 20 Slots Format for DL-UL configuration in #4
- 7. Input Special Slot Format for DL-UL symbols configuration in #5
- 8. Input SSB EARFCN in #6
- 9. Select all TDD configurations and click **Set** in operation bar to validate them all.

Note: Everon 6200 supports the same TDD configuration for enabled modules in one system.

10. Click Query all to check if Sync Status is turning green to see if the module is configured to be paired to TDD signal.



Figure 53. 5G TDD Configuration

An example is shown below:



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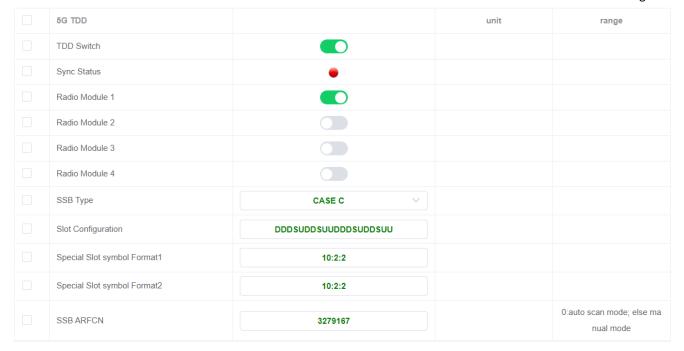


Figure 54. 5G TDD Configuration-example

### **4G TDD Configuration**

To configure 4G TDD properties:

- 1. Open the A3 OMT and go to Settings -> TDD Configuration
- 2. Turn on the TDD Switch in #1 and select the corresponding TDD modules in #2.
- 3. Select the UL-DL configuration in #3 and Select the Special Subframe Configuration in #4
- 4. Select all TDD configurations and click **Set** in operation bar to validate them all.

**Note:** Everon 6200 supports the same TDD configuration for enabled modules in one system.

5. Click Query All to check if Sync Status is turning green to see if the module is configured to be paired to TDD signal.



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Figure 55. 4G TDD Configuration

Uplink-downlink configuration		Downlink-to-Uplink Switch-point periodicity			Subframe number										
					0	1	2	3	4	5	6	7	8	9	
0		5 ms			D	S	U		U	D	S	0	1	R	
1		5 ms			D	S	U		D	D	S	U	U	0	
2		5 ms			D	S		D	D	D	S	U	D	D	
3		10 ms			D	S	U	뷴		D.	D	D	D	D	
4		10 ms			D	S	U	8	D	D	D	D	D	10	
5		10 ms			D	S	U	D	D	D	D	D	D	D	
6		5 ms		D	S	U	U	U	D	S	V	W	E		
Special subframe configuration		tended cyclic prefix length in OFDM symbols vPTS   GP   UpPTS				OFDM symbols									
0		3	8			3			10						
1		8	3	1		9			4						
2		9	2	1							1				
3	1	10	1			11			2						
- 4		2	7			47	2		4	- 50	1				

An example is shown below:



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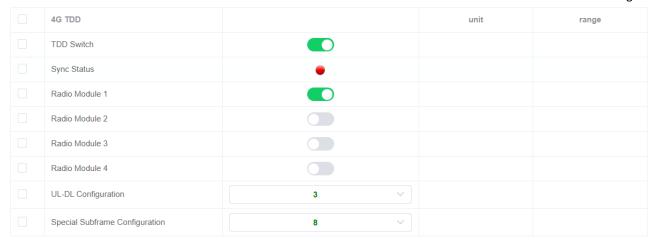


Figure 56. 4G TDD Configuration-example

#### **Module Gain Adjustment (Attenuation)**

In Everon 6200, the downlink input power of the A3 is specified as 0dBm, and the maximum allowable input power is 15dBm. Everon 6200 has an automatic level control (ALC) function to maintain the input power around 0 at the A3 input port. What's more, the A3 and E62-M3-L digital board have attenuation configuration for Gain Adjustment.

### **Gain Adjustment on A3 (Active Combiner)**

- 1. Open the Primary A3 OMT.
- 2. Go to Settings -> Radio Interface Modules -> General.
- 3. Dropdown Attenuation Control Mode and select Manual/Automatic mode as designed.

Automatic Mode: The internal ALC function is working when the peak input power exceeds 0 dBm.

Manual Mode: Reduce the input power by setting the attenuation manually.

Adjust Interval: The interval time to automatically reduce the attenuation in 2dB step when the peak input power decreases in Automatic Mode.

Combiner Att Reset: Reset all the attenuation values.

4. Click the checkbox to select this parameter and click **Set** to validate it.



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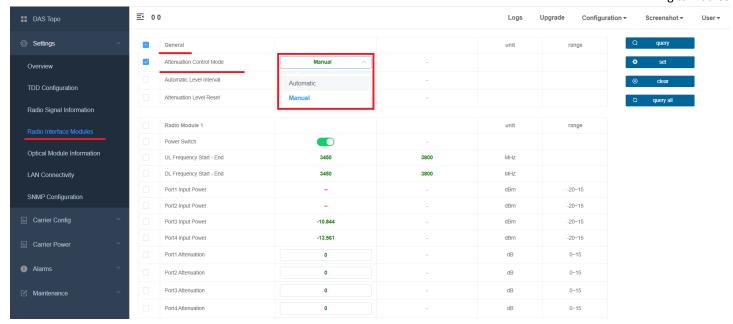


Figure 57. Attenuation Control Mode

- 5. Go to Settings -> Radio Interface Modules -> Radio Module
- 6. Locate the field and set the appropriate values:
  - 1. Manual Mode: Set the appropriate value in the field of Port Attenuation Value.
  - 2. for example: if Port 1 input power is 5.5dBm / Port 2 input power is 9.0dBm and the composite output power is divided by fifty-fifty, set 8.5 dB (5.5dB + 3dB) in Port 1 Attenuation Value and 12.5 dB (9.0dB +3dB) in Port 2 Attenuation Value.

Note: Extra 3dB attenuation is used for power distribution.

3. Automatic Mode: Set the appropriate value (%) in the field of Port Power Distribution for power distribution.

<u>Note</u>: The input power is reduced to 2dBm automatically at Radio Module. Then the left 2dBm power will be reduced to rated 0dBm at the A3 digital Board. And the output power will be distributed by the value(%) after all input power at 0dBm.

- 7. Set the operator information in the field of Port 1 ~4 Label (Operator/Service).
- 8. Click the checkbox to select these parameters and click **Set** to validate them.

<u>Note</u>: The active combiner module does NOT support hot swap in field. Please do power off the unit before swapping active combiner module.



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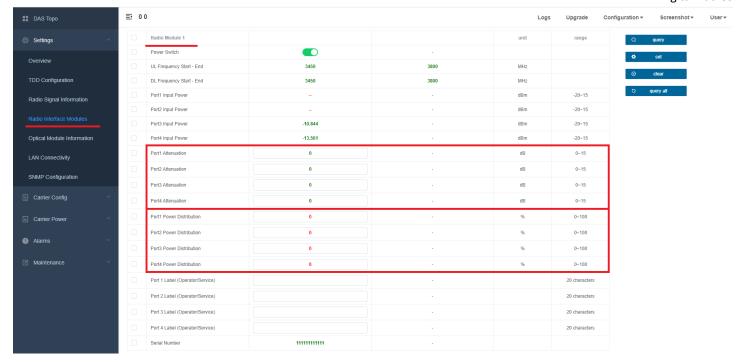


Figure 58. Attenuation in Radio Interface Module

### Gain Adjustment of Module on A3 (Digital Board)

- 1. Go to Settings -> Radio Signal Information -> Radio Module.
- 2. Input attenuation value in UL and DL Attenuation.
- 3. Click the checkbox to select these parameters and click **Set** to validate them.

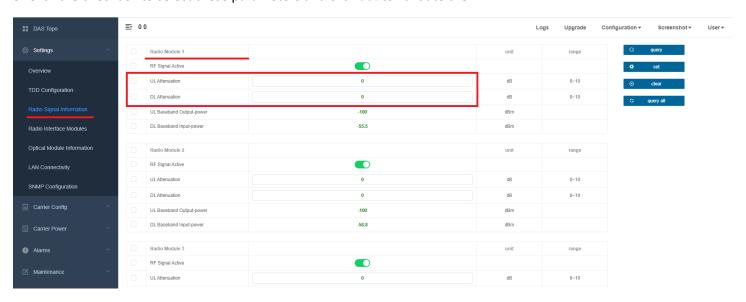


Figure 59. Attenuation in Radio Signal Information



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### **Gain Adjustment of Carrier on A3 (Digital Board)**

- 4. Go to Carrier Power -> Module 1~4 Carrier Power Configuration -> Carrier Power Configuration.
- 5. Input attenuation value in Carrier UL and DL Attenuation.
- 6. Click the checkbox to select these parameters and click **Set** to validate them.



Figure 60. Attenuation in Carrier Power Configuration

### Gain Adjustment of Module on E62-M3-L

To set attenuation in E62-M3-L:

- 1. Jump to E62-M3-L OMT
- 2. Go to Settings -> Band Configuration
- 3. Input attenuation value in **UL and DL Attenuation**
- 4. Click the checkbox to select these parameters and click Set to validate them



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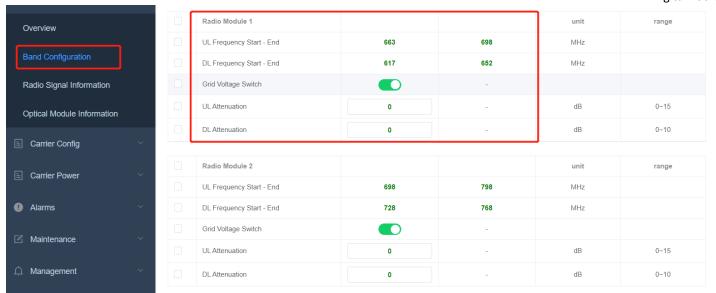


Figure 61. Attenuation in Band Configuration

### Gain Adjustment of Carrier on E62-M3-L

To set attenuation in E62-M3-L:

- 1. Jump to E62-M3-L OMT
- 2. Go to Carrier Power -> Module 1~7 Carrier Power Configuration -> Carrier Power Configuration
- 3. Input attenuation value in UL and DL Attenuation
- 4. Click the checkbox to select these parameters and click Set to validate them



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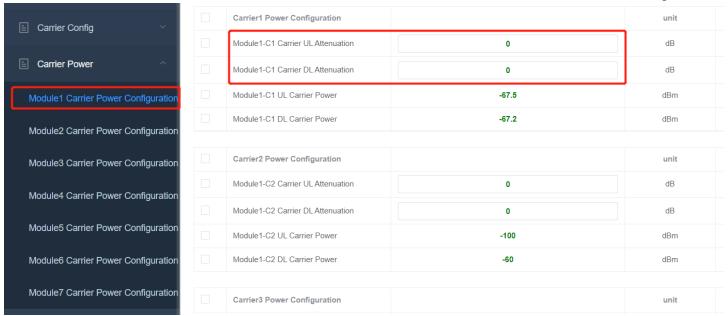


Figure 62. Attenuation in Module Carrier Power Configuration

## **Alarm**

#### **Alarm Severity**

The Everon 6200 System supports four different alarm levels – Warning, Minor, Major, and Critical.

Use the following steps to set up the appropriate alarm severity.

- 1. Log in the WEBOMT, and go to the Alarms section.
- 2. Select the appropriate severity in the drop-down box for the alarm in use.
- 3. Click **Set** to save the settings.
- 4. Wait 3 minutes after completing the setup, then query to see if there is an alarm.
  - Blank Indicator means alarm disabled;
  - Green color means no alarm;
  - Red color means the alarm is triggered.

**Note:** All alarms are default disabled at the factory. Disable the alarms not in use to avoid false alarms.

**Note:** Power Interruption Alarm and Battery Failure Alarm can **NOT** be enabled if there is no accumulator installed.



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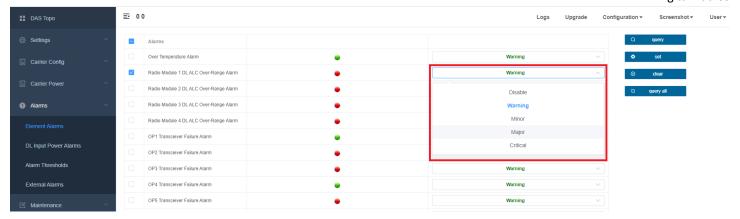


Figure 63. Alarm Severity Setup

#### **Alarm Threshold**

Use the following steps to set up the alarm threshold.

- 1. Log in the OMT, and go to the Alarm Thresholds section.
- 2. Locate the fields and set the appropriate values.
- 3. Click **Set** to save the settings.

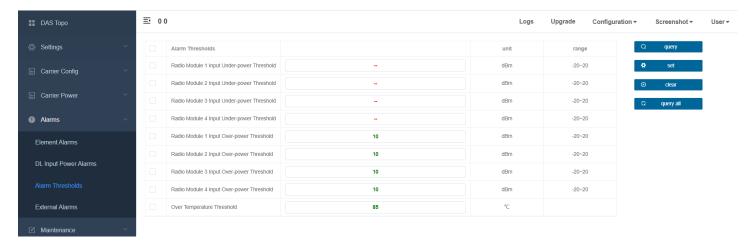


Figure 64. Alarm Threshold Setup

#### **External Alarm**

The Everon 6200 system supports external alarms inputs that as UPS failure, condition of air, entrance guard, etc.

#### **External Alarm of A3**

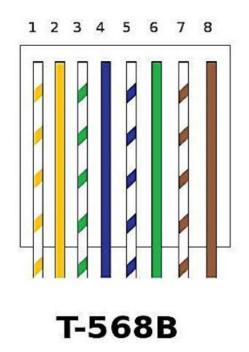
The external alarms are input to a Ethernet RJ45 interface in the front panel of A3. The external alarms can be monitored as normally closed or normally opened.



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Use the following steps to view and configure the external alarms.

- 1. Log in the A3 OMT, and go to the **Element Alarms** section.
- 2. Select the appropriate alarm level for external alarm in use at the bottom of the page.
- 3. Click **Set** to save the settings.
- 4. Go to the External Alarms section.
- 5. Type External alarm name and select Normally closed or Normally open mode.
- 6. Click **Set** to save the name.



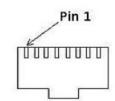




Figure 65. RJ45 Pins Description



Figure 66. External Alarms on A3 OMT



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Figure 67. External Alarms Name and mode

#### **External Alarm of E3-O**

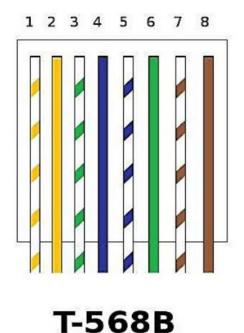
The external alarms are input to a RJ45 interface located on the front panel of E3-O. The external alarms can be monitored as normally closed or normally open.

Use the following steps to view and configure the external alarms.

- 7. Log in the E3-O OMT, and go to the Element Alarms section.
- 8. Select the appropriate alarm level for external alarm in use at the bottom of the page.
- 9. Click **Set** to save the settings.
- 10. Go to the Alarm Thresholds section
- 11. Type External alarm name and select Normally closed or Normally open mode.
- 12. Click **Set** to save the name.



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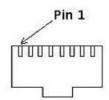




Figure 68. RJ45 Pins Description



Figure 69. External Alarms on E3 OMT

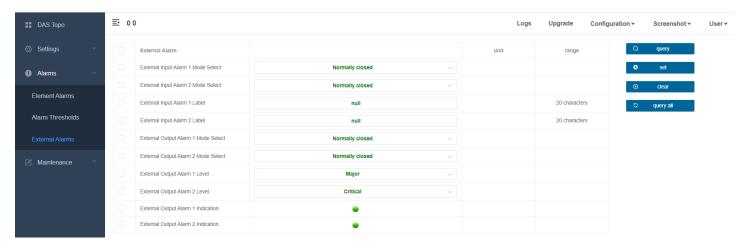


Figure 70. External Alarms Name and mode

#### **External Alarm of E62-M3-L**

The external alarms are input to a RJ45 interface located on the front panel of E62-M3-L. The external alarms can be monitored as normally closed or normally open.



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Use the following steps to view and configure the external alarms.

- 13. Log in the E62-M3-L OMT, and go to the Element Alarms section.
- 14. Select the appropriate alarm level for external alarm in use at the bottom of the page.
- 15. Click **Set** to save the settings.
- 16. Go to the Alarm Thresholds section
- 17. Type External alarm name and select Normally closed or Normally open mode.
- 18. Click **Set** to save the name.

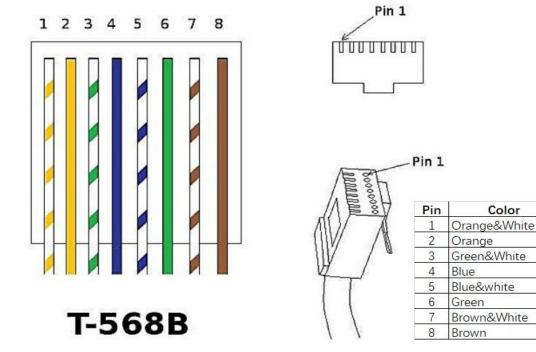


Figure 71. RJ45 Pins Description

Color

Alarm Type

External Output Alarm1

External Output Alarm2

External Input Alarm1

External Input Alarm2



Figure 72. External Alarms on E62-M3-L OMT



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Figure 73. External Alarms Name and mode

## **Advanced Activities**

### **Mapping Configuration**

The Everon 6200 E62-M3-L system can comprise many E62-M3-L to achieve extensive area coverage. Everon 6200 maintains the mapping mechanism between the A3 and E62-M3-L, so all E62-M3-L in the system can transmit the signal as long as E62-M3-L is correctly mapped to A3. Generally, the original mapping order is set automatically via the module sequence as the physical device assembly (A3\_1 -> A3\_2 -> A3\_3 -> A3\_4).

Note: If A3 modules do not have configured band properties(invalid), modules are not able to be mapped.

If there are two same band modules (Module 3 and Module 4) on A3 and one corresponding band modules (Module 1) in A3, the mapping information is A3-Module3 to E62-M3-L-Module1 and A3-Module4 to null.

To check the mapping information:

- 1. Jump to E62-M3-L OMT
- 2. Go to Settings -> Band Configuration -> Module Mapping



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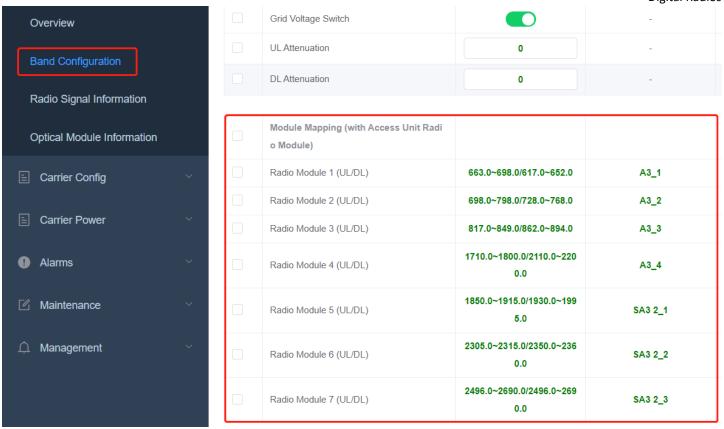


Figure 74. Mapping Information

The Everon 6200 provides Service Management to configure the mapping information with different orders according to the various situations, swap the mapping of E62-M3-L modules, E62-M3-L-Module3 to A3-Module2 and E62-M3-L-Module4 to A3-Module1.

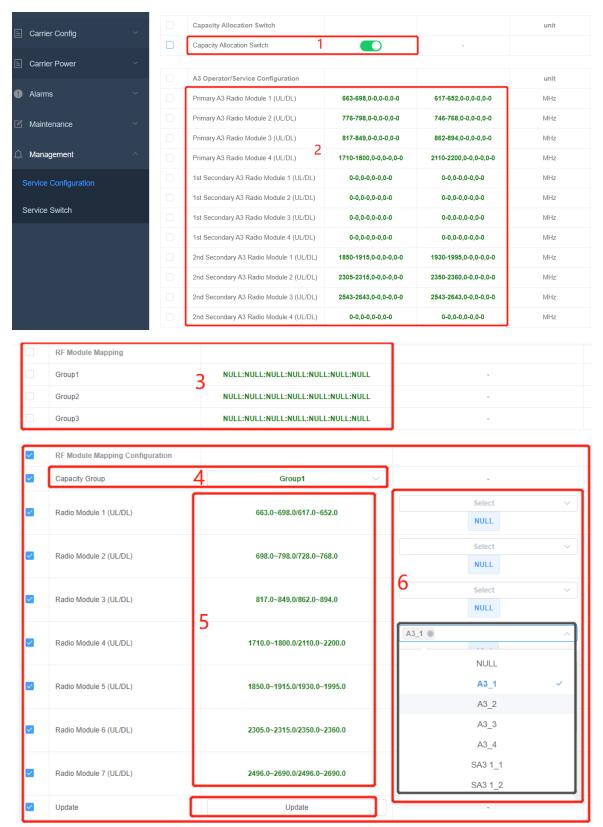
### To manage the mapping:

- 1. Jump to the E62-M3-L OMT
- 2. Go to Management -> Service Configuration -> Allocation Switch
- 3. Turn the Capacity Allocation Switch on in #1 and click Set to validate it
- 4. Click QueryAll to check the A3 Operator/Service Configuration in #2 and E62-M3-L Module Information in #5
- 5. Dropdown the Capacity Group to select the group in #4
- 6. Select the A3 module which is required for mapping in the RF Module Mapping Configuration in #6
- 7. Select all checkbox of RF module Mapping Configuration Capacity Group, Radio Module mapping and Update
- 8. Click Set to validate the mapping



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### Click Query All to check RF Module Mapping in #3





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Figure 75. Service Configuration

- 10. Go to Management -> Service Group Scheduling
- 11. Dropdown Service Group (Working Hours) and Service Group (Non-Working Hours) to select the Group for RF test so that the mapping will not be changed during the test.

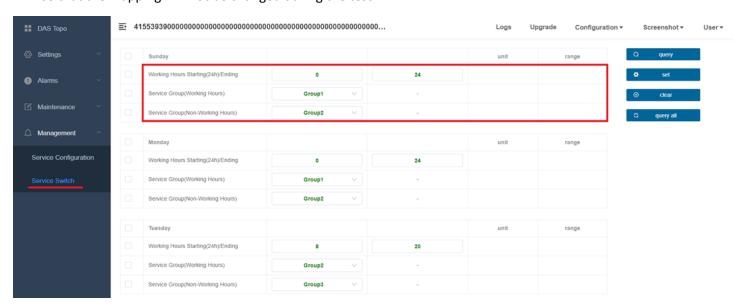


Figure 76. Service Group Scheduling

#### **Radio Module Test Signal**

E62-M3-L system provides the Radio Module Test Signal function for E62-M3-L to transmit a CW signal to test the coverage.

Use the active button in A3 to enable all modules mapped to AU-AC in RU to transmit CW signal for pre-test the coverage without BTS feeding.

To active the Radio Module Test Signal in A3:

- 1. Login to the A3 OMT, and go to Maintenance -> Engineering -> RU Radio Module Signal Test Active.
- 2. Select the status button.
- 3. Click **Set** to active/deactive radio test signal.
- 4. After the test, turn off the switch or reboot the A3 to disable the function.

Note: After RU Radio Module Signal Test Active is enabled, the unit will send CW signal at "the module physical center frequency" + 1 MHz.



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Note: The CW signal power level is the maximum output power of the unit without any attenuation in OMT. The digital attenuation of A3 and RU can correspondingly reduce DL CW singal level.

For example, the A3 module Band 1 (DL 2110-2200MHz) under test is enabled without any attenuation. Then module Band 1 in E62-M3-L will transmit 37dBm DL output power at 2156MHz.



Figure 77. Test Signal Switch in A3

### **Primary / Secondary A3 Transition**

Secondary A3 is used for expanding the system up to 12 band modules to support more band inputs or MIMO scenarios. Primary and Secondary A3 have the same hardware and software. The A3 is default as Primary, and it can change between Primary and Secondary via OMT.

- 1. Open A3 OMT and check Element Info about the A3
- 2. Go to Maintenance -> Engineering -> Advanced Command
- 3. Select the required type in Primary/Secondary A3
- 4. Wait 2 minutes for A3 rebooting
- 5. Open A3 OMT and recheck Element Info to see if the A3 is changed to the required one

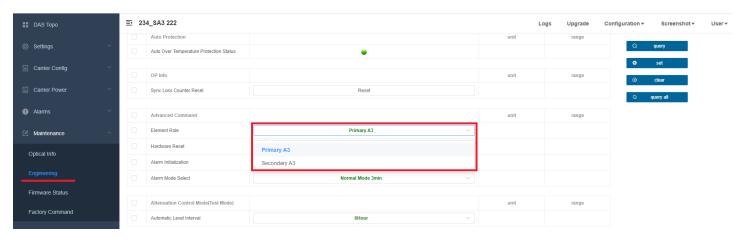


Figure 78. Primary/Secondary A3 Transition



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Figure 79. Device Type Check

### **System Delay**

Everon 6200 provides 3 methods to balance the system delay - Automatic, Manual, and Triggered.

**Automatic:** The system adjusts the delay automatically.

Manual: Delay value can be customized equal to or larger than max delay value.

**Trigger:** Click the Confirm button to adjust the system delay or set the max delay value automatically per minute.

To set the system delay procedure:

- 1. Open A3 OMT
- 2. Go to Carrier Config -> System Signal Info -> System Delay
- 3. Select the required method in Delay Adjustment Method
- 4. Click Set to validate



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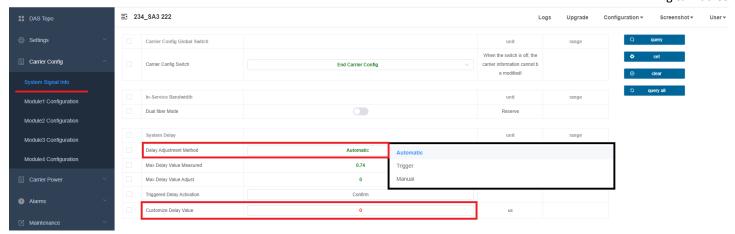


Figure 80. System Delay

### **Auto Logout Time**

The OMT has an auto-logout function in case of no operation in a period. The auto-logout time can be configured from 5 to 60 minutes.

To set up the OMT logout time:

- 1. Log to the A3 OMT.
- 2. Go to Settings -> LAN Connectivity.
- 3. Input the period in the field of **OMT Logout Time**.
- 4. Click Set to validate it.

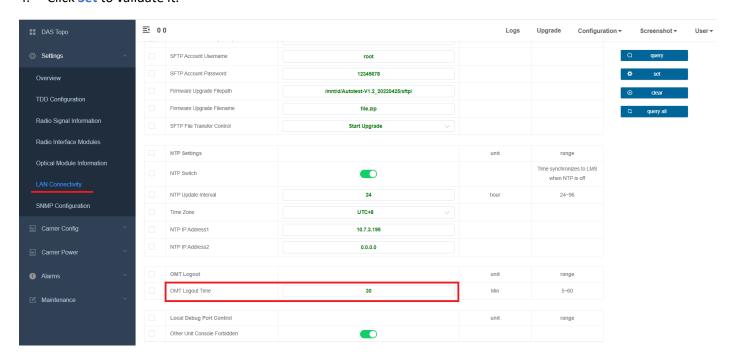


Figure 81. Logout Time



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#### **Local Console Port Control**

Everon 6200 has enhanced security functions that disable other elements' CONSOLE port.

To control other elements' CONSOLE port:

- 1. Login to the Primary A3 OMT.
- 2. Go to Settings -> LAN Connectivity.
- 3. Enable/disable the port access in Local Console Port Control.
- 4. Click Set to validate it.



Figure 82. Local CONSOLE Port Control

#### **Screenshot**

Everon 6200 OMT supports a one-click screenshot which is saved as .pdf file.

To get a screenshot for all pages:

- 1. Click Screenshot button in the upright of the OMT GUI
- 2. Click save current page to capture the current page and click export save to download.



Figure 83. Save and export current page

- 3. Click clear save to clear the screenshot.pdf file saved.
- 4. Click export all and wait a moment. The Screenshot function goes through all pages to collect all parameters.



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Figure 84. Export all of pages

5. When all parameters are captured, the screenshot .pdf file could be downloaded automatically.

iDAS\_A402\_Screenshot\_ewr3123\_5\_30\_2022.pdf

Figure 85. Screenshot.pdf file

### **Backup/Restore Configuration**

To back up element's configuration:

- 1. Click the Configuration button in the upright of the OMT GUI.
- 2. Click open configuration and check boxes for the parameters you want to back up.
- 3. Check boxes for the parameters you want to back up.

<u>Note:</u> The <u>Port Att</u> is used for manual mode but the <u>Port Power Distribution</u> is used for auto mode. Do **Not** to select the <u>Port ATT</u> and <u>Port Power Distribution</u> at same time on <u>Radio Interface Modules</u> on A3/SA3. Otherwise loading configuration will fail if the file has both of <u>Port Att</u> and <u>Port Power Distribution</u>.

4. Click export configuration button to download all saved configuration in a .json file



Figure 86. Create a back-up file

iDAS\_A402\_Configuration\_ewr3123\_2022\_5\_11.json

Figure 87. Create a back-up file successfully



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To restore the element's configuration:

- 1. Click the Configuration button in the upright of the OMT GUI
- 2. Click the Load Configuration button
- 3. Upload the .json file and click the Load button to restore the configurations.

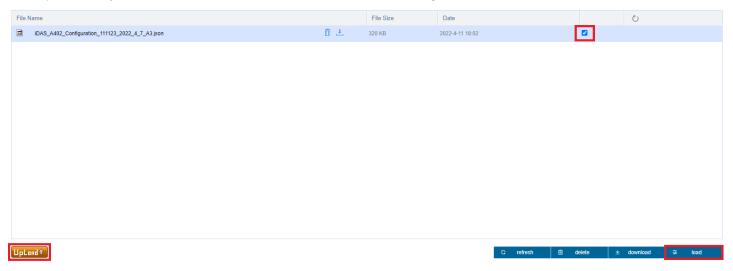


Figure 88. Restore Configuration

### **Backup/Restore Carrier Configuration**

To back up element's carrier configuration:

- 1. Click the Configuration button in the upright of the OMT GUI.
- 2. Click the export carrier configuration button to download the carrier configuration as .CSV file

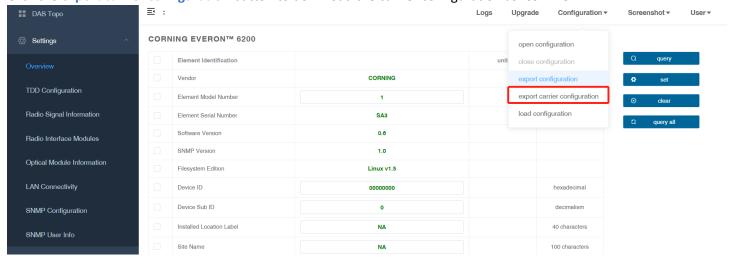


Figure 89. Create a back-up file



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Carrinfo.csv

Figure 90. Create a back-up file successfully

To restore the element's carrier configuration:

- Click the Configuration button in the upright of the OMT GUI
- 2. Click the Load Configuration button
- 3. Upload the .CSV file and click the Load button to restore the configurations.

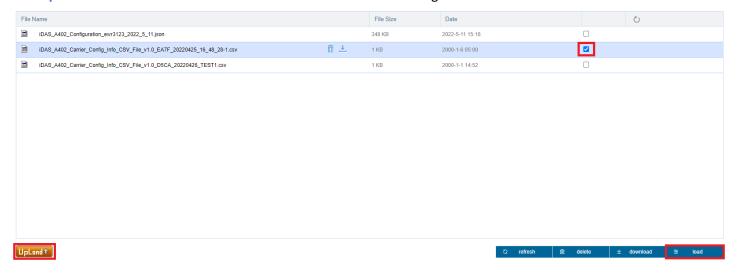


Figure 91. Restore Configuration

#### **Software Upgrade**

The Primary A3 consolidates the management of software upgrades for the entire system and saves the last software package information for A3, E3-O, and E62-M3-L. Sub devices will compare the local software with the latest information saved in Primary A3 by checking CRC at run time. If the CRC is different, Sub devices will be synchronized via the current software package from Primary A3. Therefore, when a Sub device is replaced, its software will be upgraded automatically without any additional operation.

Note: If it is the Primary A3 to be replaced in a system, check the software version of the new Primary A3 before connecting it to the system. If the software version is not the latest, upload the latest software packages to the new Primary A3.



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#### **Local One SW Package Upgrade**

The Everon 6200 system supports local sync-upgrade. There are two steps for the system software local sync-upgrade. Firstly, upload the one system software package, which includes whole compatible A3&E3&N3&E62-M3-L software release, to the Primary A3. Secondly, Sub devices are synchronized automatically via the Primary A3 if the CRC is different. Please make sure the upgrading from the lowest level device to the highest level device (E62-M3-L -> E3 -> A3). The A3 must be the last one to be upgraded.

As an example, to do one system release local upgrade:

1. Log into the OMT on the Primary A3. Click the **Upgrade** button on the main page to navigate to the software upgrade page. See Figure 92.

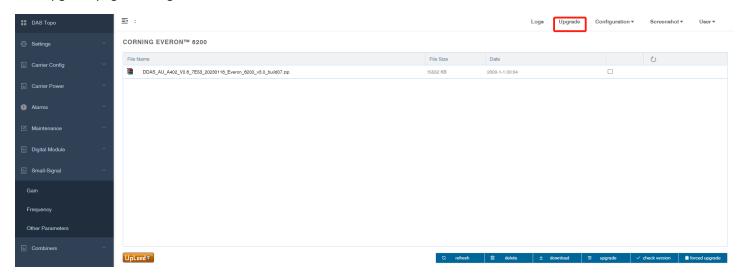


Figure 92. Software Upgrade 1

2. On the software upgrade page, as shown in Figure 93, click the **Upload** button to upload one system software package file.



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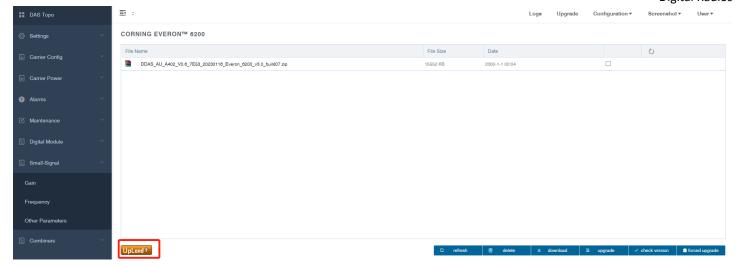


Figure 93. Software Upgrade 2

<u>Note</u>: The Primary A3 software storage is currently limited to 80MB. Please be aware of not exceeding the limitation and check that the software package size is as large as the correct size after uploading. Uploading and upgrading software packages will fail if there is no more storage. Delete some packages with the old version to continue the upgrade.

3. After the one system software is uploaded successfully, it will divide four A3,E3,N3 and E62-M3-L packages and show in the list. Select the file that was just uploaded E62-M3-L package and click the **Upgrade** button to complete the software upgrade, as shown in Figure 94 for an E62-M3-L upgrade.

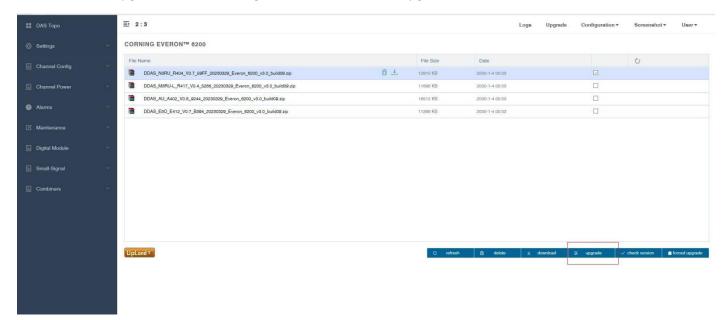


Figure 94. Software Upgrade 3

4. During the upgrade, a process bar will be displayed to indicate the progress.



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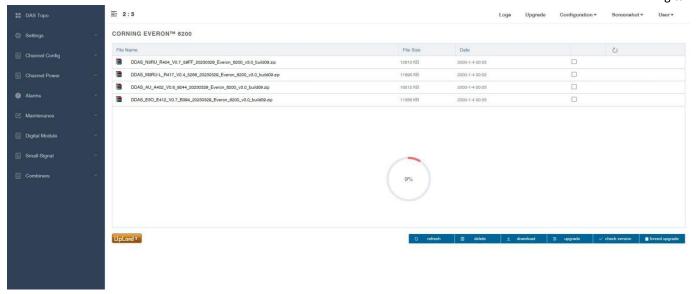


Figure 95. Software Upgrade 4

5. After the upgrade task is done, a pop-up window will show the results.



Figure 96. Software Upgrade 5

6. Can log in to the devices' OMT and go to Maintenance -> Firmware Status to confirm that the firmware version is correct as shown in Figure 97.



Figure 97. Software Version Check 1



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7. Then go to **Settings -> Overview** to confirm that the software matches the version in the upgrade package as shown in the red frame of Figure 98.



Figure 98. Software Version Check 2