Fiber Smart NETWORKS

ROME
ROBOTIC OPTICAL ENGINE®

Administrator's Manual

TABLE OF CONTENTS

Fiber Smart
N E T W O R K S

ROME
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual

1   Introduction

1.1   About This Document

This guide covers ROME software configuration and administration. It includes step-by-step instructions on how to configure the Wave2Wave Robotic Optical Engine (ROME) system as well as instructions on how to set up and administer users of the system.

1.2   Audience

This document is intended for Software Administrators of ROME equipment.

1.3   Related Documents

The ROME Hardware Installation Manual covers the installation of the ROME equipment into a rack. This document is a follow up document to help a customer administrator configure their ROME equipment once it has been installed.

This document should not be consulted until the ROME equipment is fully installed and powered up.

2   Configuring the ROME Equipment

Configuration of the ROME Equipment involves configuration of the ROME LCU and a ROME Chassis on the same rack.

To configure ROME, the administrator will be using ROME's Command Line Interface (CLI) as well as ROME Shell logging. In addition to using ROME's CLI and Shell logging, the administrator needs to use a terminal emulation application such as *Teraterm* and an FTP file management application such as *Filezila*.

In the configuration steps outlined below, Teraterm and Filezila have been used, as examples, to show the steps involved in configuring the ROME equipment. If the administrator uses other applications, the terminal emulation application must allow logging in both CLI and Shell mode, and the file management application must allow FTP file transfer.

If needed, TeraTerm installation is covered in Appendix 2.

2.1   ROME Configuration Process

The first steps in configuring the ROME LCU involve:
- Initiating a Terminal Session
- Logging in as a SuperUser

Once the administrator has logged in as the SuperUser, the Initial Setup process can begin, which covers:
- Configuring IP Info
- Setting the clock
- Rebooting

After the Intial Setup process is complete, the administrator should run a few random connect and disconnect tests.

Note: If, at any point, there is an error message or incorrect behavior, please suspend setup and contact Wave2Wave.

2.1.1   Initiating a Terminal Session

1) Connect a laptop to the ROME LCU with a serial port cable and open terminal software (i.e. Teraterm) The popup window shown below will open.
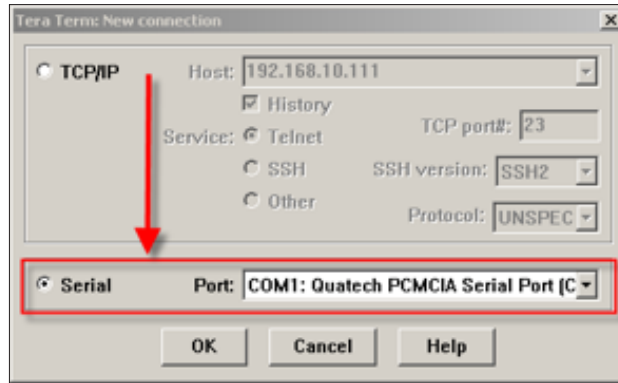
2) Select the radio button "Serial" and select the appropriate COM port & click ok.

3) Go to Setup > Serial port >
   The following popup will open:
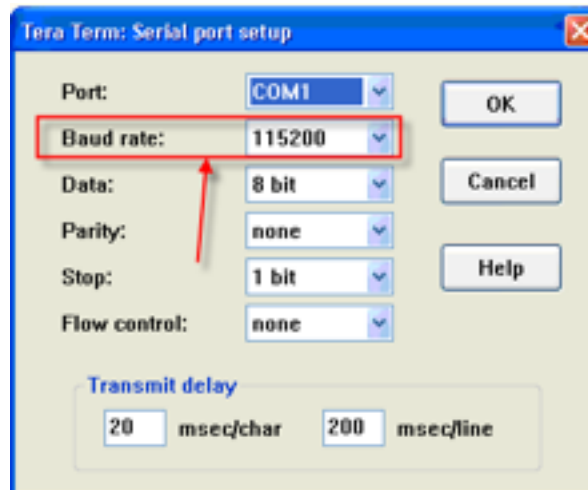
Set the parameters as above. In most cases, especially if Teraterm is being used, then the only parameter that needs to be changed is the "Baud rate" (to 115200).

4) Click OK and hit Enter. You are now in the Shell -> prompt of the machine.

5) Type **version** to find current IP address configured on the machine.

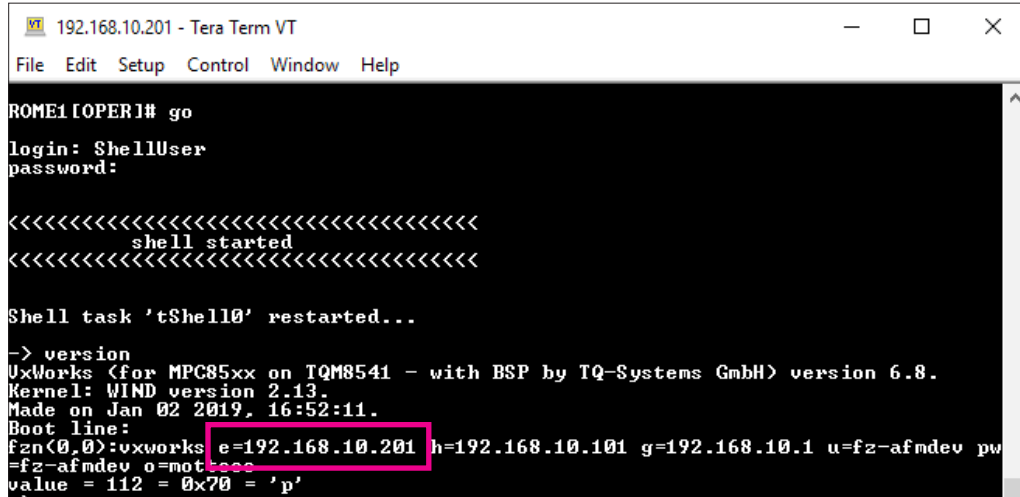6) You can now connect to the management (LAN) port using the current IP address.
   - Connect a CAT5E cable to the LAN port on the LCU and the other end to the ethernet port of the laptop.

7) Configure the laptop's ethernet adapter setting within the same subnet

To change the IP Address of laptop to access ROME, use the following steps:
- Go to Network & Internet Settings
- Go to Ethernet
- Change Adapter Options
- Open Ethernet
- Select "Properties"
- Double Click on "Internet Protocol Version 4 (TCP/IPv4)"
  - *Example*:
  - IP found was 192.168.10.201 (from step 5 above)
  - Internet Protocol Version 4 (TCP/IPv4) Properties
  - Select "Use the following IP address" and type:
    IP Address: **192.168.10.202**
  - Set the subnet as /24 or **255.255.255.0**
  - Click OK

Fiber Smart
NETWORKS

ROME
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual
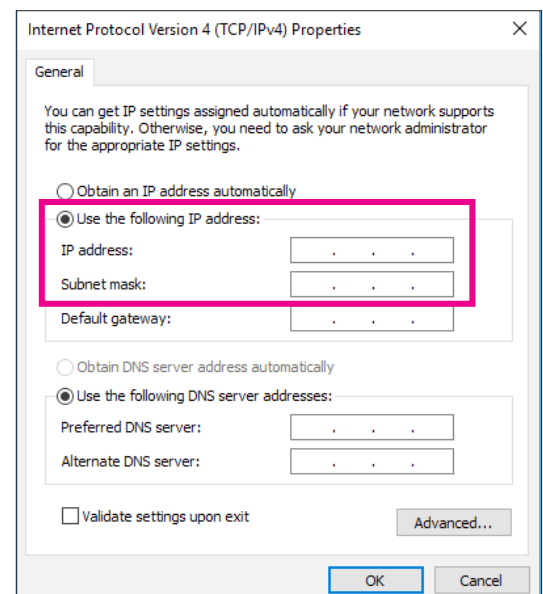
2.1.2   Access ROME Through LAN Port

Open up terminal session (i.e. Teraterm)

- Select TCP/IP and put the IP address (found in step 5 of 2.1.1) and make sure port number is 23
- Click OK and you will get the Login: prompt
- Log in as: **SuperUser**, with the password **superuser** and hit enter
Note: After configuring ROME, it is important to change the password of the SuperUser (see Section 2.2).
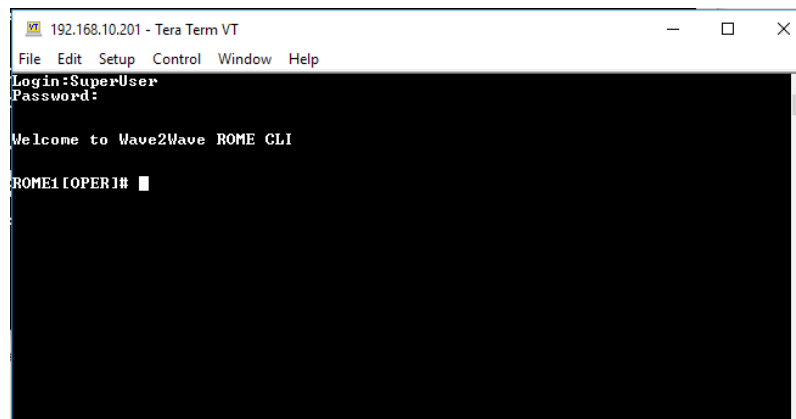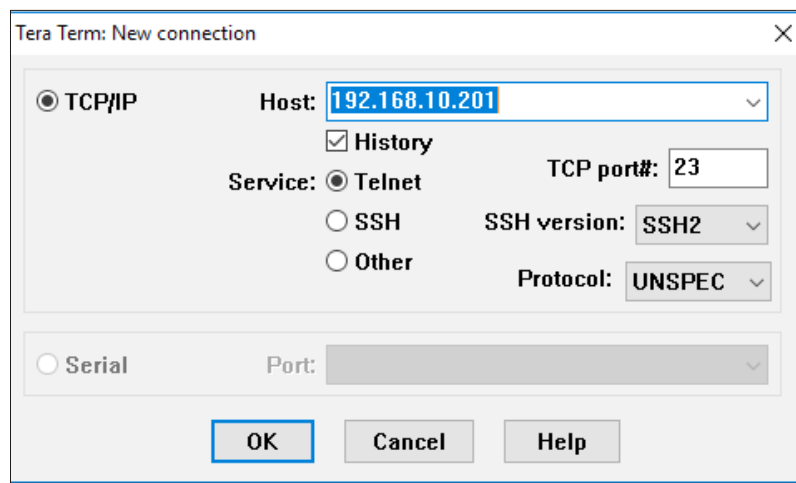
You are now inside the CLI in ROME[OPER] mode

2.1.3   Configure the New IP Address

The first step is to configure the IP address of the ROME equipment.

1) Use command **Set board ipParams ipAddr 172.16.22.10 subnetMask 255.255.0.0 dfltGateway 172.16.0.1** and press enter

   Note: Above IP and gateway are examples

ROME will now change the IP address and disconnect from the laptop

- To re-connect to ROME, configure your laptop IP based on the new IP of ROME (Reference step 7 of 2.1.1)

2.1.4   Configure Time and Date

1) Open up terminal session (i.e. Teraterm) and connect using steps from 2.1.2

2) To set time and date using command: **set time ntp server <enter IP Address of ntp server>**

3) To set the time source, use the command: **set time source sntp**

   Note: To get NTP server details, use the link: https://tf.nist.gov/tf-cgi/servers.cgi


```
Login:SuperUser
Password:

Welcome to Wave2Wave ROME CLI

ROME1[OPER]# set time ntp server 129.6.15.28
```

To configure time and date manually, use below steps:

1) **set time source manual**

2) **set time date mm-dd-yyyy**

3) **set time hour hh:mm**

Fiber Smart
NETWORKS

ROME
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual

2.2   Changing the SuperUser Password

Once ROME has been configured for the first time, the SuperUser password should be changed for security. To change a SuperUser password, the user must be logged in as a SuperUser and use the "user password" command. As an example:

> **#user password SuperUser**
> **#newpassword**
> **#newpassword**
> **#superuser**

This set of CLI commands will change the SuperUser password from "*superuser*" to "*newpassword*".

Note: "newpassword" is a placeholder, please use a more secure password for the SuperUser.

ROME Setup is Complete

2.3 Basic Administrator Commands:

Homing a ROME Chassis:
Homing will initialize the ROME robotic motor positioning.
From the CLI, enter the homing command:
ROME[OPER]# **homing run**
Note: It will take 1-2 minutes to complete homing process, during this time no connections will be made

Performing a Connection:
connection create a20 to a120
Logical port format: <matrix><port number>   For example a25

Performing a Disconnection:
connection disconnect a20 from a120

Disconnect all connections:
connection disconnect range all
Y: Yes   N: No

Disconnection Abort:
connection disconnection range abort

Disconnect range of connections:
connection disconnect range <portId> to <portId>

Enabling Connections:
ce

Connection Pending List:
cp

Check the connection list:
cc

To clear all connection request entries:
c*

Logout of ROME:
logout

3   User Administration

ROME supports 4 default user profiles:

- **Super User** - This user has access to all Operations/Permissions.
- **Security Administrator** - This user is able to add, configure, edit and delete users and their profiles.
- **System Administrator** - This user is able to provision connections and ports.

Users can be added to any of the above profiles/groups by the Super User or Security Administrator.

What follows below is a short tutorial on setting up and administering users. For a full set of user administration commands, please see the Command Line Interface (CLI) User Manual.

Note 1: The only two user types that can administer users are the Security Administrator and the SuperUser.

Note 2: Authentication servers, such as a Radius server, can be used with the ROME to administer and manager all users of the ROME equipment. For example, for Radius authentication servers, the CLI interface offers the command "set radius-server".

3.1   Creating a new User

To create a new user, the "users add" command is used. In this command, the user's username, initial password, and access level is set. For example:

      #users add Fred secret!pass3 system administrator

This command adds a new system administrator user named Fred, with a password. Fred should be reminded to change his password on his first access.

Note: Only SuperUsers can add other SuperUsers. Security Admins can add users who are Security Admins, Technicians, and System Admins.

3.2   Changing a User's access level

User's access level can be changed using the "users access" command. For example,

      #users access Fred Security Adminstrator

Changes Fred's access level from System Administrator to Security Adminstrator.

F i b e r   S m a r t
N E T W O R K S

R O M E
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual

3.3   Deleting, Suspending, and Re-enabling a User

A User can be deleted using the "users delete" command. For example:
> **#users delete Fred**.

A user can be suspended for a period of time, then re-enabled using the "users disable" and "users enable" commands. For example:
> **#users disable Fred**
> **#users enable Fred**

3.4   Changing a User's Password

A user's password can be reset using the "user password command". For example:
> **#user password Fred**
> **#newpassword**
> **#newpassword**
> **#secret!pass3**

The user can use this command themselves to change their password, or the Security Admin (or SuperUser) can use it to reset a password for a user that has forgotten it.

3.5   Monitoring Users

Users can see all the users currently defined on the system by using the "users show" command. In addition, this command can show those users who are currently logged on, or those users not logged on. For example:

> **#users show logged**

lists all the users currently using the system, listing each users name and access level.

Fiber Smart
N E T W O R K S

R(O)M E
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual

Appendix 1 - Detailed ALARM LED Table

The Wave2Wave ROME LCU front panel has three LEDs, as shown below. These LEDs provide a quick visual indication of the system's functional status.
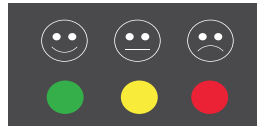
General Rule for LED Colors

Lit Green LED		ROME has power and the system is functioning without problems
Lit Yellow LED		Minor/Warning Alarm
Lit Red LED		Critical/Major Alarm
Blinking Red LED		Technician mode - not necessarily an Alarm

Detailed ALARM LED Indicator Table

LED Status	System Mode	Comments
Green + Amber LED blinking; On: 2 secs, Off: 1 sec.	Power-UP	• All LEDS operational • LEDs continue blinking until power-up is complete
Red + Amber + Green simultaneous blinking	Setup Mode	• System in setup or configuration mode • Verify all LEDs are working
Green LED ON	System Ready	• System Ready, no robot motion
Green LED Off	No Power	• Power not connected or power supply failure
Green LED Blinking	System Initialization or robot motion	• System is initializing as a result of a command or routine audit being executed. • Connections/disconnections inprogress
Red LED ON	Major, Critical Alarm, System in Call Tech mode	• Reference troubleshooting guide • Connect/Disconnect disabled • Contact technical support

Fïber Smart
NETWORKS

R O M E
ROBOTIC OPTICAL ENGINE®

Administrator's
Manual

Detailed ALARM LED Indicator Table (continued)

LED Status	System Mode	Comments
Red LED Blinking	Technician mode	• System undergoing maintenance • When in CR/MJ alarm, red led also blinks while in Technician mode.
Amber LED ON	Minor alarm	• System in shell mode (Debug) • Shutdown or Pause mode (No motion)
Amber LED Blinking		• Shutdown or Pause mode (No motion allowed) • Call Tech Activity

In addition, each power supply has its own LED.

Detailed Power Supply Indicator Table

| LED Status	System Mode	Comments
Power Supply LED Off	No Power	• No Input Power • Power Supply Failure
Power Supply LED ON and LIT Green	OK	• Input Power connected and within spec • Power supply on and in active or standby mode
Power Supply LED ON and Blinking Amber	Power Supply Failure	• Power input or output failure • Internal fan

Appendix 2 - Teraterm Installation

You can download the TeraTerm application here: https://ttssh2.osdn.jp/index.html.en
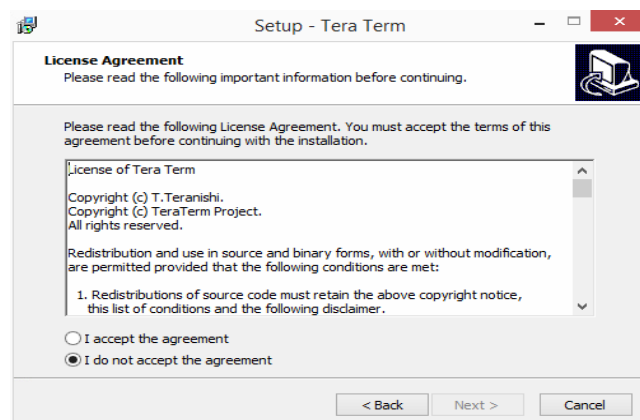
TeraTerm Installation

- Double click on the TeraTerm installation exe file.
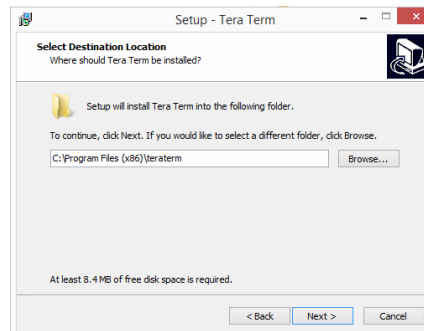
- Click on run.
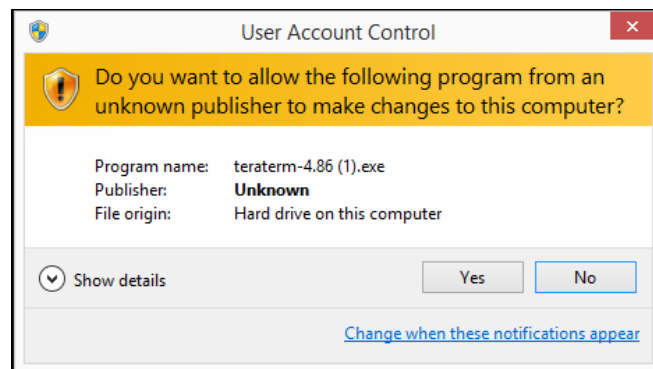
- Click on Next.
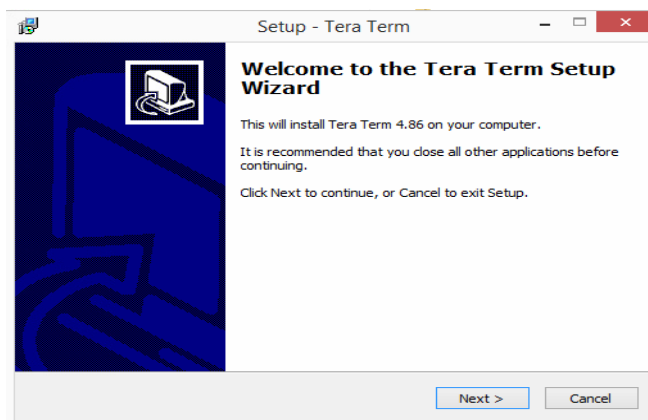
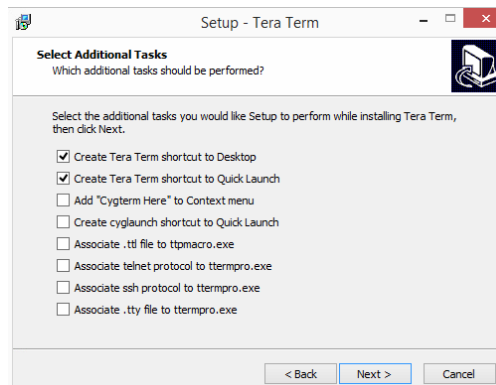- Select the "I accept the agreement" option and click next.

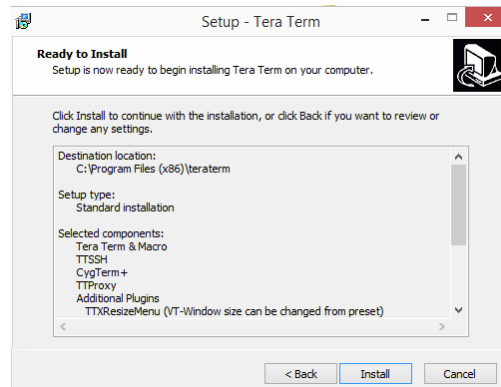- Define the path for installing the software and click next.

- Select "Custon Installation," unmark "CygTerm+" & "LogTT" and press next.

- Select the language and click next.

- Select the program name for the start menu folder and click next.

- Click next.

- Click install.

Fiber Smart
NETWORKS

ROME
ROBOTIC OPTICAL ENGINE®

Innovate • Design • Manufacture

Contact

U.S. Headquarters

47775 Fremont Blvd • Fremont, CA 94538
phone: 408-586-8800