LMS2000

End-User Modem (EUM)

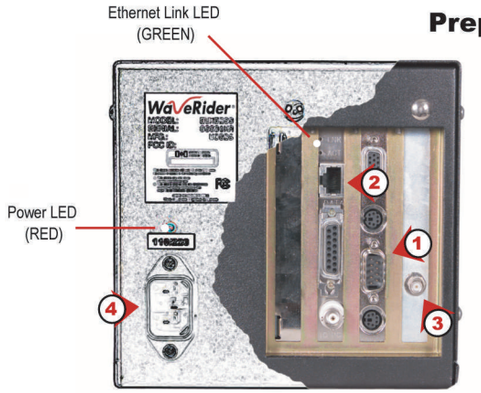
Quick Reference Guide

The final link in ***WaveRider's*** *Last Mile Solution (LMS)* is the End-User Modem (EUM), an intelligent, self-contained, wireless device that provides broadband Internet access for individual or networked computers. Communicating directly with the CAP Channel Unit (CCU) via point-to-point or point-to-multipoint radio, the EUM is an LMS end-user's *wireless connection to the world.*

Before an EUM can operate wirelessly, it must be connected to the LMS Network Management System (NMS) and configured using WaveRider's custom LMS software.

This guide is intended as handy quick reference for the most commonly performed tasks in this 3-stage process:

Stage 1 Preparing the EUM
Stage 2 Configuring the EUM
Stage 3 Deploying the EUM



EUM Backplane Connections

You Will Need

Network Management System (NMS) Workstation with pre-loaded LMS software

RS-232 Serial cable (for configuring via Telnet)

RJ-45 Ethernet cable (for configuring via Windows)

Stage 1

Preparing the EUM

1. Connect the RS-232 cable to the serial port on the EUM, and to COM2 on the NMS Workstation.

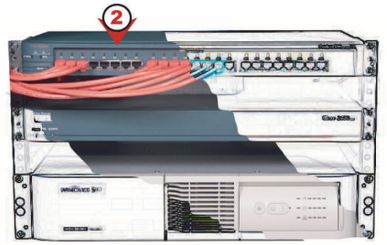
Note

NMS **COM1** is reserved for the APC PowerChute UPS monitoring utility.

2. Plug the RJ-45 cable into the Ethernet port on the EUM, and any available Ethernet connection on the Network Access Point (NAP) switch.
3. Attach an antenna or 50 ohm RF load to the EUM antenna lead (**Important**).
4. Plug the EUM into AC power, but before proceeding, confirm that it is operating correctly:
   - ✓ Unit 'beeps' after power up
   - ✓ Red Power LED is ON
   - ✓ Green Network Link LED is ON (indicating unit is connected to Ethernet).
   - ✓ Cooling fan is operating

Important

NEVER operate an EUM without a 50-ohm antenna load. Failure to terminate this device properly may cause permanent damage.



Network Access Point (NAP) Ethernet Connections

5. If using Telnet to configure the EUM, start a Hyperterminal session by selecting **Start, Programs, Accessories, HyperTerminal**. When connected to the EUM, a command line interface (CLI) window appears with a **`Password>`** prompt. **Enter** to accept the default password (blank field).
6. At the **`EUM>`** prompt, type **`ip`** to display the Ethernet IP address of the EUM. If this is not already 192.168.10.250/[Netmask 24], type **`ip addr eth`** to change address, then **`sa`** to save.

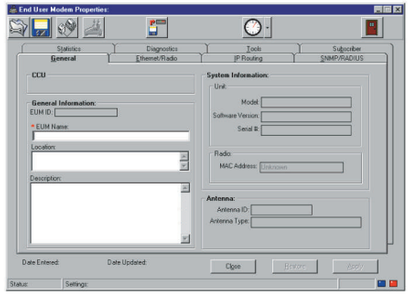
You are ready to begin configuring the EUM

LMS Icons

- Add New EUM (Same Button for CCUs)
- Retrieve EUM Configuration
- Save to Disk
- Connect to
- Disconnect
- Update
- Set Reporting Interval

Stage 2

Configuring the EUM



1. At the NMS Workstation, run the LMS Network Management Software. Under **Inventory**, select **EUMs**, then click **Add New**. When the **End-User Modem Properties** screen appears (see above), assign each unit an **EUM Name** on the **General** tab, plus a **Local ID** on the **Ethernet/Radio** tab (both fields are mandatory and must be unique). Optionally, assign a **Password** on the **Tools** tab.
2. If you are deploying this EUM immediately, you must assign account, subscriber, and service levels, and enable its radio before proceeding to Step 3.

   If you are pre-configuring this EUM for **Inventory**, awaiting account and subscriber information yet to be determined by sales, go directly to Step 3.
3. Fill-in all other mandatory fields (*) on each tab, and **Apply**. Verify that the EUM connection record meets the following system requirements:
   - ✓ EUM Radio is enabled
   - ✓ The Radio of this EUM and its CCU are on the same channel
   - ✓ The Radio IP Addresses of this EUM and its CCU are on the same network
   - ✓ Routing tables exist for both the EUM and CCU, and are correctly populated
4. **Connect to** the EUM, and upload the new configuration data by clicking **Update.**
5. **Link** the EUM to its associated CCU, and disconnect from the NAP.

Stage 3

Deploying the EUM

This stage may be performed while still connected to the NMS, or later - even remotely - via any computer equipped with Windows, Hyperterminal software, and the custom ***WaveRider*** configuration utility.

1. Connect the RS-232 serial cable to the EUM and PC, and start a Hyperterminal (Telnet) session.
2. Change the default Ethernet IP address used for configuring the EUM on the NMS, to the IP address it will operate with in the field, then **Apply**.
3. Upload the final configuration to the EUM by clicking **Update**. To confirm configuration, enter **`ip`** on the Telnet CLI.

Your EUM is ready to be used for wireless Internet access

This publication is intended for quick reference only. For detailed instructions on installing, configuring, and operating an LMS2000 End-User Modem, consult the *Adding an EUM* chapter in your **LMS2000 User Guide**.

If you require additional information or help with this product, contact ***WaveRider*** Product Support:

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Frequently Used Telnet Commands

`ip`	displays the IP configuration.	**`radio`**	displays the radio configuration.
`ip address`	displays the IP addresses for the Ethernet and radio interface.	**`radio per`**	displays the cumulative radio packet error rate.
`ip address` **`Ethernet`**`[Netmask]`	changes the radio's Ethernet IP address. The syntax for the Ethernet IP address is *aaa.bbb.ccc.ddd*, with the [Netmask] expressed in either decimal form, or number of bits.	**`reset`**	restarts, and returns to previously programmed configuration.
		`[single]`	[displays current statistics]
		`[continuous]`	[updates display every second]
		`[reset]`	[clears and restarts calculations]
`ip ping` `[destination IP]`	sends an ICMP echo request to a remote host, confirming that your signal is reaching that destination.	**`save`**	saves configuration data
		`exit|quit|bye`	closes the Telnet session.