

1. Upgrading the Radio's Firmware

From time to time, GE MDS releases new firmware for its radio products. This file can be installed in existing radios to take advantage of engineering improvements or additional features that have been added. Two methods may be used to load new firmware into the radio: TFTP and Serial Transfer.

1.0. Firmware Upgrade via TFTP (LAN port)

Firmware files are available free-of-charge online at:
www.GEMds.com/service/technical/support

NOTE: Only firmware specifically designed for this model of radio may be installed in the unit.

To install firmware by TFTP, you will need:

1. A valid firmware file (see web address above).
2. A PC with a TFTP server running. A Windows-based TFTP server may be downloaded from the GE MDS Web site at:
www.microwavedata.com/Resources/TechnicalSupport
3. The IP address of the PC running the TFTP server. If you do not know your computer's address on a Windows PC, use the RUN function from the Start menu and enter winipcfg or ipconfig to determine the address.
4. The IP address of the radio. The radio's IP address can be found under the IP Configuration menu shown later in this procedure.

1.0.1. Connecting the Transceiver for Firmware Upgrade

There are several alternatives to connecting the transceiver for firmware upgrade. Figure 1 and Figure 2 show two variations. It is essential all of the equipment be on the same subnet.

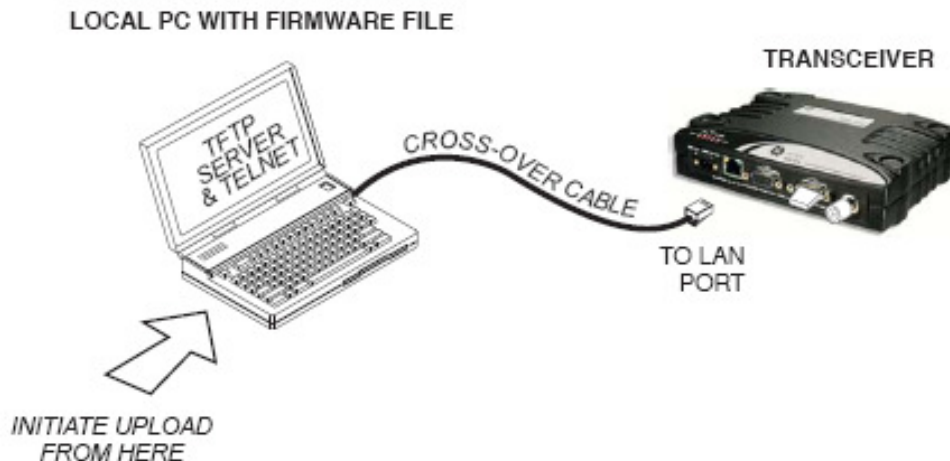


Figure 1. Firmware Upgrade Setup—Option 1
(TFTP Server and Firmware File Reside on Same CPU)

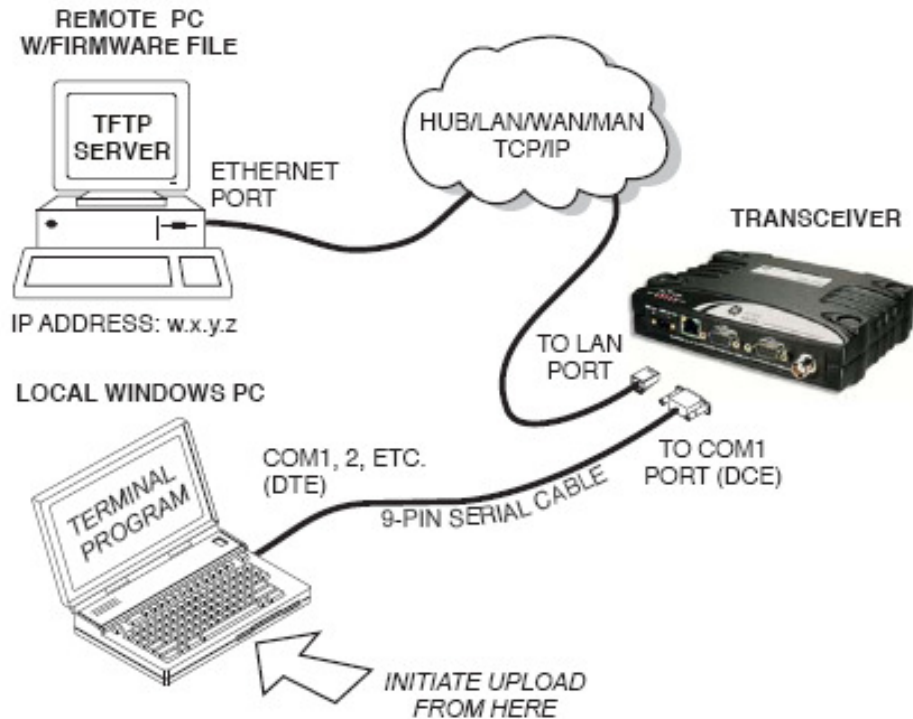


Figure 2. Firmware Upgrade Setup—Option 2
(TFTP Server and Firmware File Reside on Remote Server)

1.0.2. Upgrade Procedure

To load a new firmware file (**filename.mpk**) into the transceiver, use the following procedure:

1. Connect an Ethernet cable between the radio's LAN port and the PC's (refer to Figure 15 or Figure 1, as applicable). Verify that the yellow LED on the radio's LAN port lights and stays lit. This verifies that the network is functioning.
2. Launch the TFTP server and click the **Options** tab (A in Figure 3 below) and modify the **Outgoing path** (B) using your browser to point to the folder where the reprogramming package (**.mpk** file) is located. The path (C) will be displayed once the operation is completed. Leave the application running until reprogramming on the radio is complete.

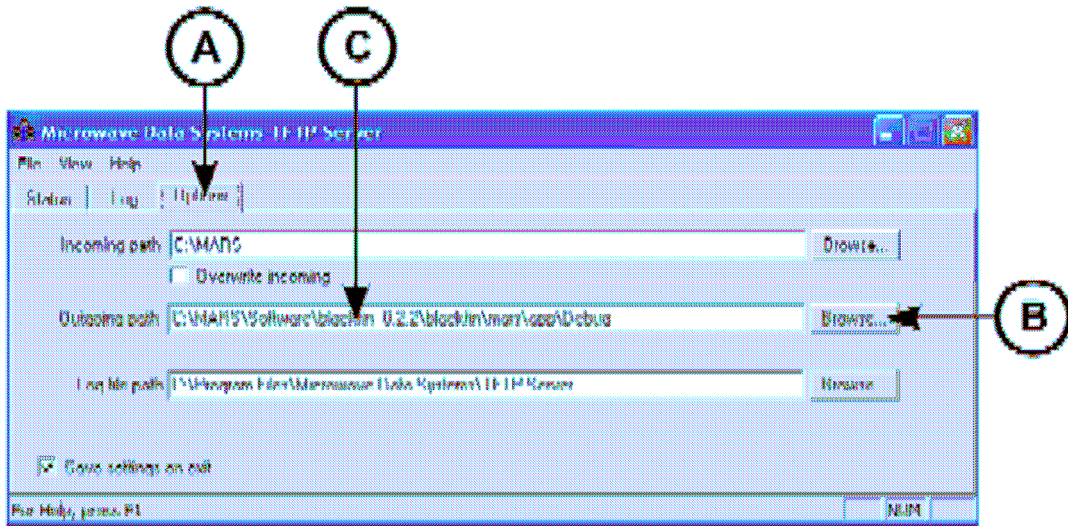


Figure 3. TFTP Server Screen

3. Invoke menu mode by entering the menu command (>MENU). For the login name, type **admin**. For the password, press the Enter key.
4. Navigate on the menu to the networking configuration to verify the radio's IP address. (**Main Menu>>Network Configuration>>IP Configuration**). The menu shown in Figure 4 appears.

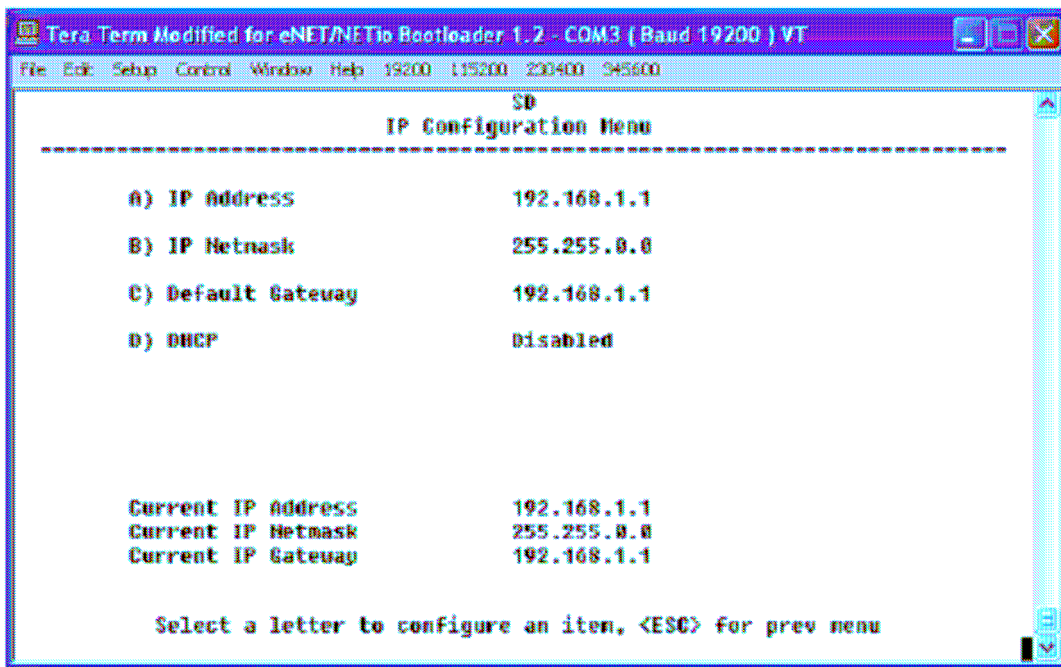


Figure 4. IP Configuration Menu

5. Set the IP Address, Netmask, and Default Gateway as appropriate. Note the default gateway must be on the same subnet as the transceiver. Alternately, if a DHCP server

is available, enable DHCP and wait several seconds for the IP setting to be obtained from the server. The IP settings used are shown at the bottom of the screen.

6. Ping radio's IP address from the PC using a Ping Utility. Verify that the radio responds.
7. Return to the Main Menu and navigate to the TFTP Reprogram Menu (Figure 5).

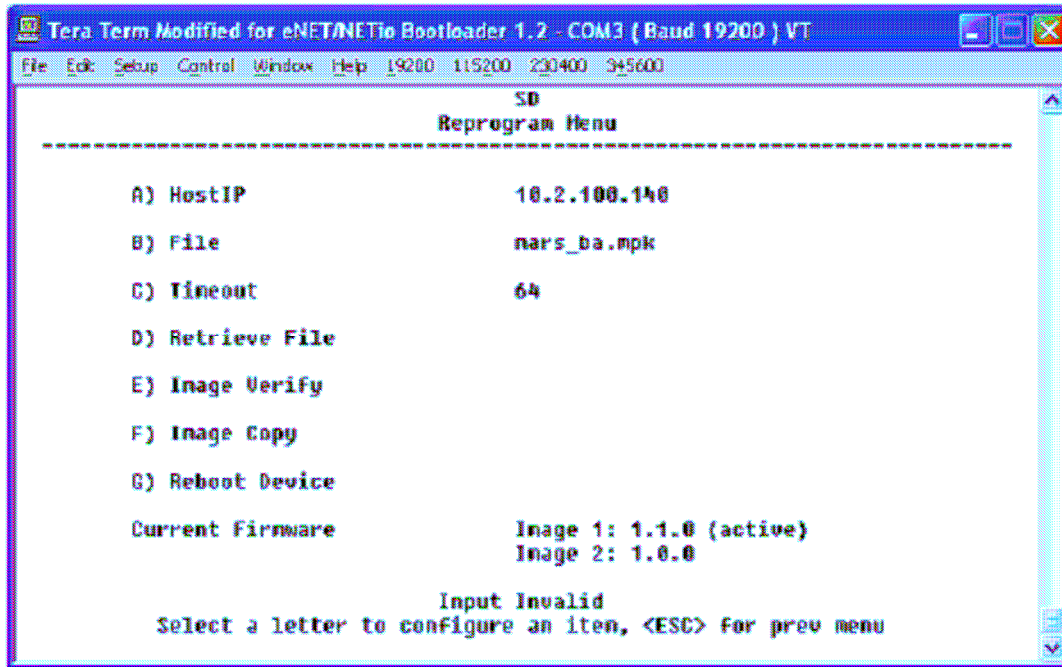


Figure 5. Reprogram Menu

8. On the Reprogram Menu, verify that the radio has the right IP address for the TFTP server on the **HostIP** option. Set the path where the reprogramming file is located in the TFTP server on the **File** option.
9. Start reprogramming by selecting **Retrieve File** option from the menu. A progress string indicates the reprogramming status. At this point, the radio is programming the inactive image. (There is an Active and an Inactive image in the radio at all times).
10. As soon as reprogramming is complete, verify the package downloaded into flash using **Image Verify** option. Make sure to select the *inactive* image when the choice is presented.
11. Reboot to inactive image once verification is completed successfully, using **Reboot Device**.
12. Verify that radio is running new application image using **SREV** command.

NOTE: If a firmware installation fails, the radio is left with the original active image intact. The installation should be attempted again.

End of TFTP Upgrade Procedure

1.1. Error Messages During File Transfers

It is possible to encounter errors during a file transfer. In most cases errors can be quickly corrected by referring to Table 1.

Table 1. Common Errors During TFTP Transfer

Error Message	Likely Cause/Corrective Action
Invalid File Type	Indicates that the file is not a valid firmware file. Locate proper file and re-load.
File not found	Invalid or non-existent filename on TFTP server
Invalid file path	Invalid or non-existent file path to TFTP server
Timeout	TFTP transfer time expired. Increase the timeout value.
Flash Error	Flash memory error. Contact factory for assistance
Bad CRC	Cyclic Redundancy Check reporting a corrupted file. Attempt to re-load, or use a different file.
Version String Mismatch	Invalid file detected. Attempt to re-load, or use a different file.
Sending LCP Requests	The PPP server is querying for any clients that may need to connect.
Port not Enabled	The serial port is disabled.