Microwave Data Systems Inc.

Firmware Upgrade Process for MDS entraNET 900 Remotes

This document outlines the recommended upgrade process for the entraNET-series radio from Versions 1.4.0 and 1.5.0 to firmware version 2.3.2 or later. This process has been developed with a number of assumptions, which will help speed the reprogramming steps.

Notes:

1) The Flash Remap has been completed successfully on the Access Point and the new firmware 2.3.2 has been loaded and is active at the Access Point as well.. Without this being completed, the Remote Firmware will not be available for over-the-air reprogramming.

2) It is highly recommended to turn Encryption OFF, disable FEC, and use 28ms hoptime at the Access Point during this process. These settings shall provide optimal performance.

3) Sleep mode MUST be disabled at the Remote prior to beginning this process. The radio is woken up only by the presence of local data at its port. Therefore, the remote must be manually configured with sleep mode=off in order for it to receive the remote reprogramming.

4) Version 1.4.0 Remotes do not support the use of 14ms hoptime. Ensure that your AP is configured to us 28ms hoptime during this process. If your AP is configured for 14ms hoptime, and your Remotes are using firmware from 1.4.0 – they will not associate. If you encounter this, change the hoptime to 28ms, and the Remotes will associate.

5) In Firmware version 2.3.2, the Encryption Phrase has been modified to a more secure, 8-to-40 character format. In previous firmware versions, a phrase of less than 8 characters was allowed. For this reason, it is highly recommended that encryption be disabled during the upgrade process, and a new >8 character Encryption Phrase be applied.

6) Broadcast Reprogramming is a new feature added to Firmware version 2.3.2. This will allow users to broadcast a firmware upgrade to all connected remotes simultaneously. However, the previous versions of Remote firmware do NOT support this functionality. This reprogramming document will detail a suggested reprogramming method, incorporating both Individual Reprogramming (called Remote Reprogramming) and Broadcast methods to help reduce the overall time needed for this process.

7) The Access Point should not be connected to a high-traffic LAN segment. When the device is connected to a high-traffic segment, the potential for excess broadcast traffic to interfere with the upgrade process is elevated. MDS recommends that, if at all possible, the Access Point be isolated to a quiet network segment during this process.

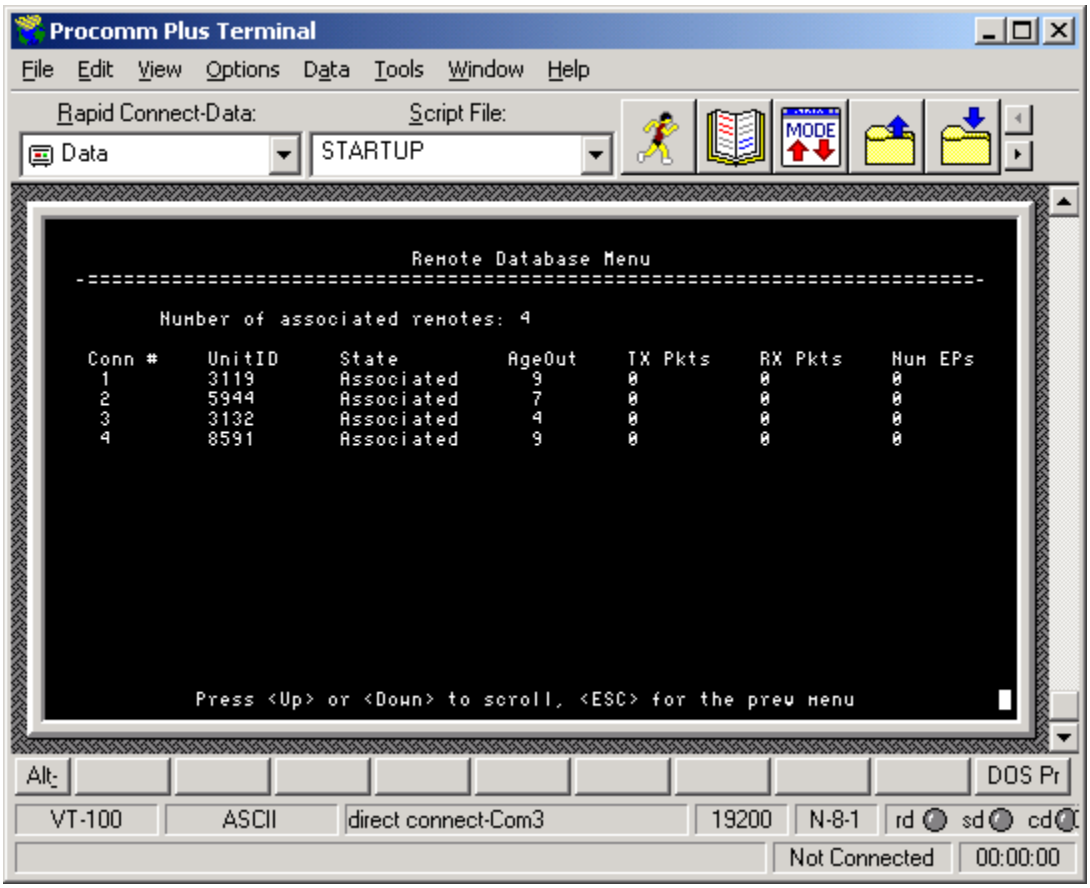
Document Index:

1.1 - Prerequisites for Remote Upgrade

- Ensure that the Access Point has successfully upgraded to Firmware version 2.3.2. Also ensure that all Remotes which were previously Associated to this device are now successfully re-connected.

- Verify, and record the UnitID of each associated remote connected to this Access Point. This can be done from the Access Point main menu. Select options ***G) Wireless Network***, then ***D) Remote Database***. The list that is displayed shows the UnitID of each remote, and its status. See Image 1 for an example of this (On Page 2)

Image 1:



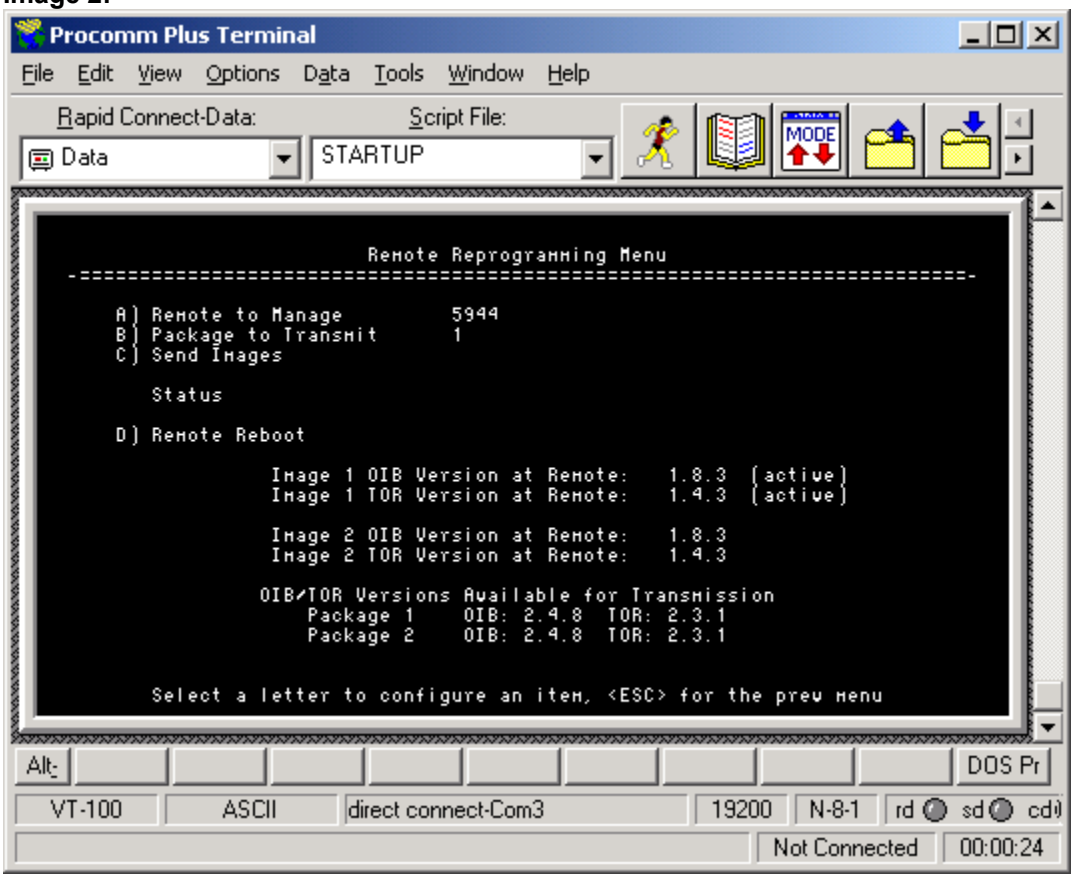
- Verify that the Access Point is not connected to a High-traffic Ethernet LAN segment. If excess traffic is present on this network, it can affect the overall performance of the reprogramming process.

1.2 - Remote Reprogramming Steps – Over-The-Air Reprogramming

With the Access Point connected to a quiet network segment, select the first remote in the list that was obtained in Section 1.1 of this document. Begin by logging into the Access Point.

From the Main Menu, select option ***G) Wireless Network***, and then ***C) Remote Management***. In the Remote Management Menu, you will see 3 selections. Press ***A*** , then enter the UnitID of the first remote to reprogram. Then select option ***B*** to Manage Selected Remote. In the Manage Selected Remote Menu, select option ***F***. You will see the following screen (Image 2), displaying the Remote Firmware versions, and the packages available for Transmission.

Image 2:



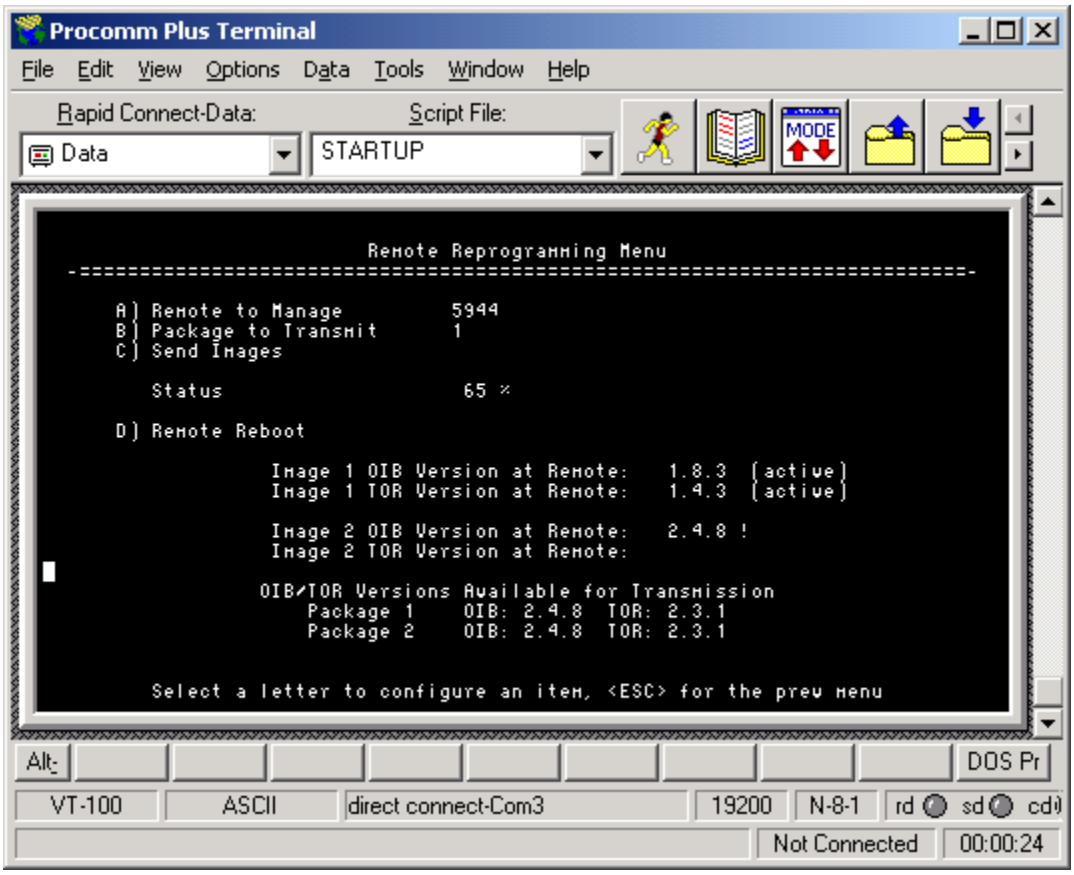
From this menu, you should choose the appropriate firmware package you wish to reprogram the remote with. In the case of an upgrade to 2.3.2 AP Firmware, choose the package labeled **OIB: 2.4.8** and **TOR 2.3.1.** These packages are the firmware that is associated with AP revision 2.3.1.

Select B to choose the firmware package to transmit to the remote. For firmware release 2.3.2 – there is no difference between Package 1 and Package 2, so you may choose either.

Select A to begin the file transmission. You will be asked “Reprogram the Remote now?(Y/N)” – select Y and the process will begin.

1.3 – Reprogramming in Process

Image 3:



NOTES:
-The reprogramming process will send the packages to the inactive image. During this transmission, you may notice the character display different text or symbols. This is part of the process, and is expected.

-The status indicator will show a % value of completion. When the process is finished, the status indicator will show “Completed”, and the target image should now display the proper versions.

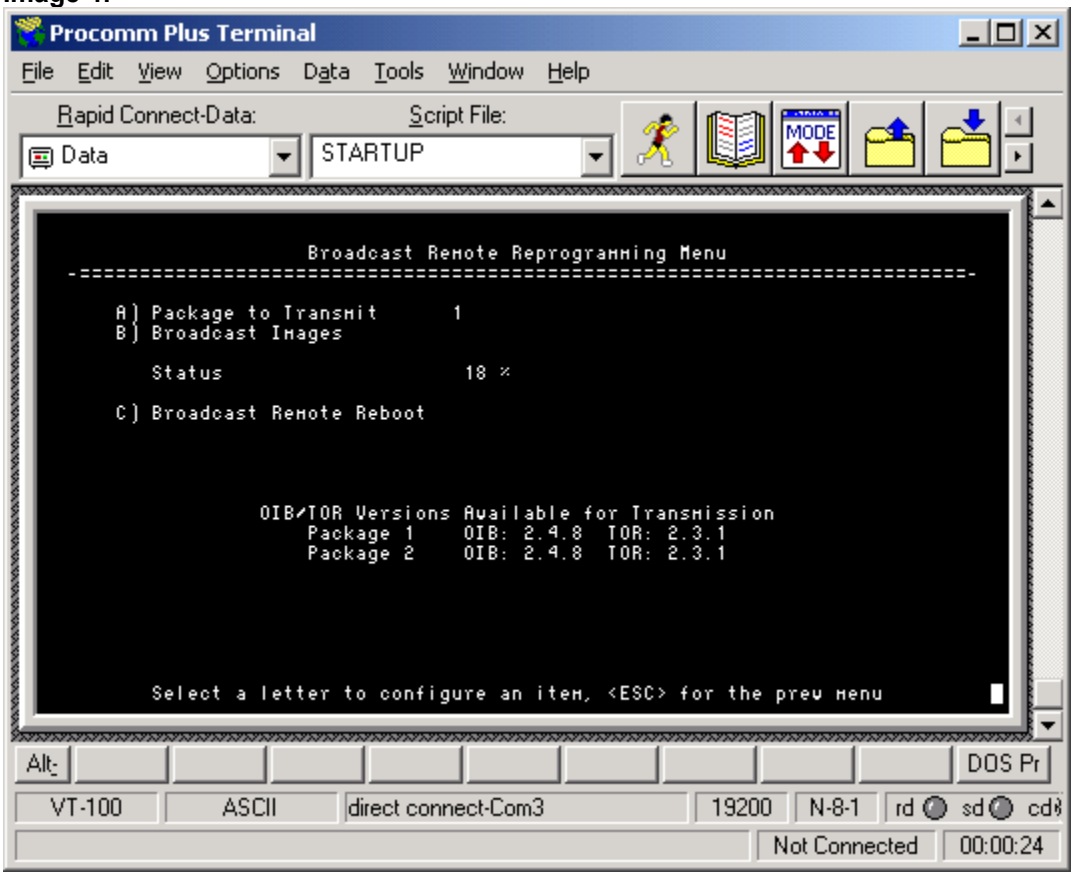
-In order to activate this new programming, you must reboot the device to the new package. Select option **D** at this menu. You will be asked “Reboot to which image (1/2)?” – select the new image by entering the correct number. The remote radio will then reboot to the new firmware package. This process will require a longer time than normal, as new Radio programming will be uploaded – this will add to the reboot time of the remote initially. After a successful reboot, the indication on the above screen will now show the ACTIVE image as the new firmware.

-Repeat the steps outlined in Sections 1.2 and 1.3 for each connected remote on your entraNET network. Upon completion of these steps, continue to Section 1.4 to finalize the reprogramming of your remotes.

1.4 – Broadcast Reprogramming

Upon completion of the steps outlined in Sections 1.2 and 1.3, you are now able to use the new "Broadcast Reprogramming" function available in the newest firmware. From this point onward, any Remote Firmware upgrades can now be done in one step. First, ensure that all of the remotes that were previously associated are once again registered at the Access Point remote database. While still connected to a quiet network segment, log into the Access Point. From the Main Menu, select ***G) Wireless Network***, and then ***C) Remote Management***. In the Remote Management Menu, you will see 3 selections. Press ***C*** , to select Broadcast Remote Reprogramming. You will see the following screen (Image 4), displaying the Remote Firmware versions, and the packages available for Transmission:

Image 4:



This menu is similar to those in Section 1.2 and 1.3 – however you do not need to specify the Remote UnitID. In order to initiate a Broadcast Reprogramming of your connected remotes:

– Select option **A** to choose the Firmware package to transmit. Select the correct package to transmit by entering 1 or 2 (which indicates the package number).

– Select option **B** to begin the Broadcast Reprogramming process. You will be prompted with "Reprogram All Remotes on the Network Now?(Y/N) - press **Y,** then ENTER to begin.

NOTES: The reprogramming process will send the package to the inactive image. The status indicator will show a % value of completion. When the process is finished, the status indicator will show "Completed".

– Upon completion of the process, select option **C** to reboot the Remote radios to the new image. You will be prompted with: "Reboot All Remotes to Other Image Now?(Y/N) – press **Y**, then ENTER to begin the remote reboot process.

The Remote Reprogramming steps are now complete.