

1 GENERAL DESCRIPTION:

A step-by-step guide to updating the Bootloader and Firmware of an Entel Radio for a Type 2 LCD.

2 REQUIREMENTS:

- A HX Programming Lead (CPROG HX/2.0) depending the on the radio's model.
- Entel Programmer which can be freely downloaded from: www.entel.co.uk/updates/.

3 DOWNLOADING THE UPDATES:

- 3.1 First download the necessary software upgrade for the Type 2 LCD from our website: <http://www.entel.co.uk/updates/LCDSoftwareUpgrade.zip>
- 3.2 Unzip the "LCDSoftwareUpgrade" zip file using a compression tool. If you do not have a zip compression tool you can download 7Zip for free from: www.7-zip.org.
- 3.3 The Unzipped Upgrade pack will include a "FlashWriter.exe" and 2 Boot loaders:
 - **HX_TYPE2_LCD_ONLY_BOOTLOADER.bl**: The bootloader that needs to be applied for type 2 LCDs.
 - **HX_TYPE1_LCD_ONLY_BOOTLOADER.bl**: A recovery bootloader to be used only with type 1 LCDs.

4 UPDATING THE FLASH WRITER APPLICATION:

- 4.1 Open Flash writer by clicking on the Flash Writer Icon  on Entel Programmers Menu Bar.
- 4.2 Check the version number of Flash Writer, which is shown in flash writer's title bar . 
- 4.3 If the version of flash writer is V3.2.0.3 or later than your flash writer will already be able to update the bootloader of the radios. If it is V3.2.0.2 or lower than you will need to manually update flash writer by:
 - Closing down both Entel Programmer & Flash Writer.
 - Next update the Flash Writer application by copying the "FlashWriter.exe" file from the "LCDSoftwareUpgrade" folder to your Entel Programmer folder, which by default will be: "C:\Program Files\Entel Programmer autoupdate".
- 4.4 Now re-open flash writer and check that the version number displayed in the title bar has been changed.

5 PREPARING THE RADIO:

- 5.1 Remove the radio's accessory cover to reveal the accessory socket.



- 5.2 Connect the programming lead to the radio's accessory socket, attaching the other end to your computer's serial port (only finger tight).
- 5.3 If your PC does not have a serial port we strongly recommend using Entel's USB-to-Serial converter and driver (the driver is included with Entel programmer).

6 PUT THE RADIO INTO FLASH MODE:

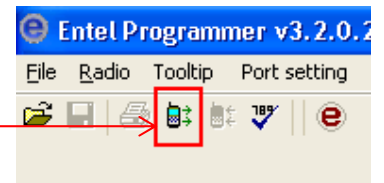
A radio will need to be in flash mode to update a Boot loader. To put a radio into flash mode:

- 6.1 Put the radio in "Programming Mode" by turning the radio on while holding the lower button on the side of the radio. This will cause the radio to beep once & the LED to flash between **GREEN** and **ORANGE**.



HX Side Button

- 6.2 In Entel Programmer, read the radio by selecting "Radio\Read" on the menu bar OR click on the Read button.



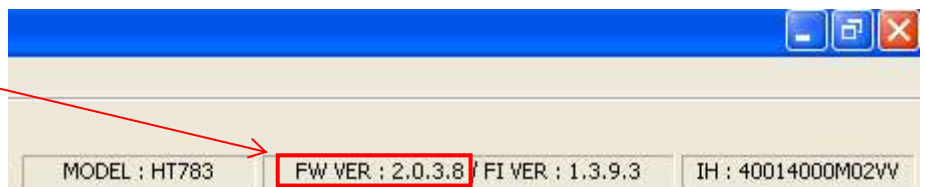
- 6.3 While the radio is being read you will see a progress bar.

- 6.4 If you experience any connection problems, please download: "How To Resolve A Connection Problem".

- 6.5 Then check the Firmware Version No (FW VER) of the radio on Entel Programmer's info bar in the top right corner of Entel Programmer

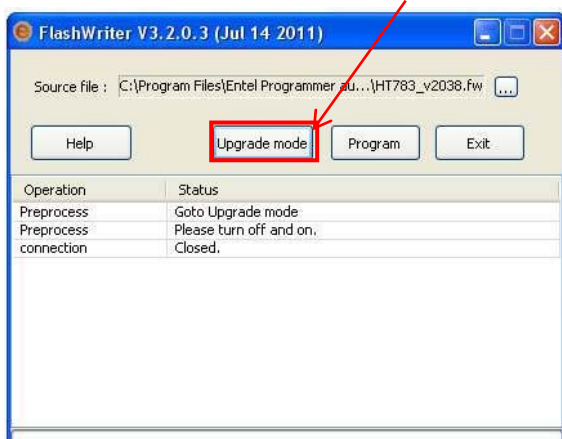
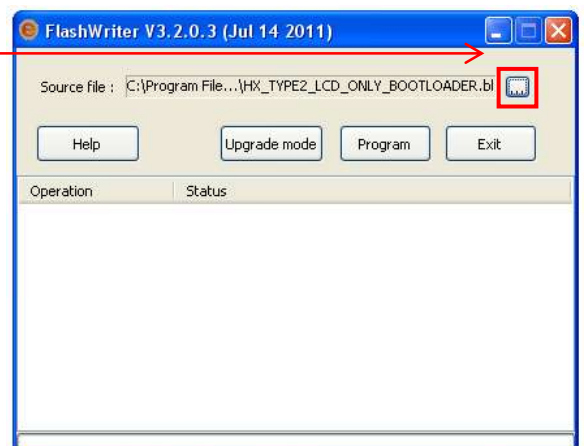
E.g: 2.0.3.8.

If the firmware version number is 2.0.3.0 or later follow Step 7, otherwise move onto Step 8.



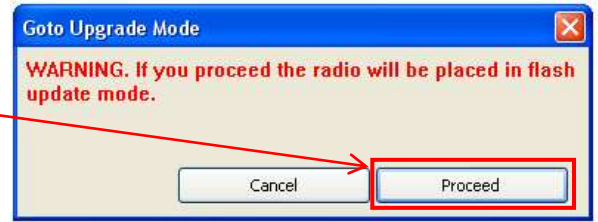
7 FOR FIRMWARE VERSION 2.0.3.0 OR GREATER USE UPGRADE MODE:

- 7.1 On Flash Writer select the bootloader for the radio by pressing the source "..." button and then selecting the bootloader file from the upgrade pack E.g: HX_TYPE2_LCD_ONLY_BOOTLOADER.bl
- 7.2 On Flash Writer press the "Upgrade mode" button.



7 FOR FIRMWARE VERSION 2.0.3.0 OR GREATER USE UPGRADE MODE: (CONTINUED)

- 7.3 This will display a "Goto Upgrade Mode" window, press the proceed button.
- 7.4 Next Flash Writer will display an "Information" window asking you to turn the Radio Off and On. Press the OK Button.
- 7.5 Turn the radio off, wait a couple of seconds and turn the radio on again.
- 7.6 On LCD models you should see 'Entel Upgrade System' & version number (normally v1.6). The LED should constantly glow **GREEN**, except on older versions (before v1.6) where the radios LED will extinguish. To test if the radio is in flash update mode press the PTT, if the LED goes **RED** the radio is not in flash update mode. Proceed to Step 9.



CONNECTION ERROR MESSAGE:

If you get the connection error message, please check:

- The radio is in programming mode, the radio's LED should flash between **GREEN** and **ORANGE**.
- The radio programming lead is properly connected to the radio and the computer's serial port.
- The version of firmware in the radio is after version 2.0.3.0.




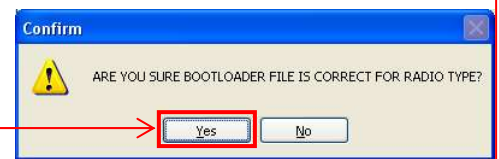
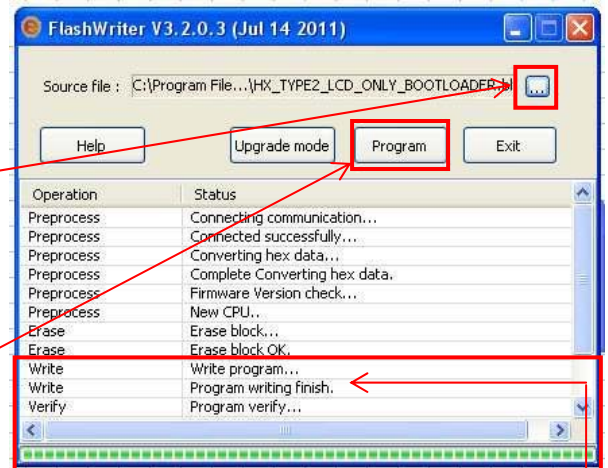
8 FOR FIRMWARE BEFORE 2.0.3.0 USE THE 4,3,2,1 METHOD:

- 8.1 Special instructions for non-display radios only:
 - Ensure the radio's first 7 channels are programmed with channel data.
 - Change the channel to channel 3.
- 8.2 Turn the radio on & wait for the radio to boot fully, this will be signalled by 1 sharp beeps followed by several quick beeps.
- 8.3 Swiftly but accurately turn the channel selector 4 positions clockwise, 3 positions anti-clockwise, 2 positions clockwise, 1 position anti-clockwise & then press the PTT button (the large transmit button on the left side of the radio) & the radio should beep twice.
- 8.4 Turn the radio off & after a couple of seconds on again.
- 8.5 On LCD models you should see 'Entel Upgrade System' & version number (normally v1.6). The LED should constantly glow **GREEN**, except on older versions (before v1.6) where the radios LED will extinguish. To test if the radio is in flash update mode press the PTT, if the LED goes **RED** the radio is not in flash update mode. This process can sometimes be a little difficult & may take several tries.

9 UPGRADING THE RADIO'S BOOTLOADER:

To upgrade the bootloader of the radio:

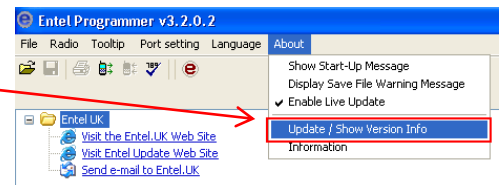
- 9.1 Open Flash Writer Application by selecting the Flash writer icon on the Start Menu or by pressing the flash writer icon  on Entel Programmer's Toolbar.
- 9.2 On Flash writer select the source file for radio by pressing the "... " button & then select the latest version of the bootloader for your radio from the 2 files in the "LCDSoftwareUpgrade" file:
 - HX_TYPE1_LCD_ONLY_BOOTLOADER.bl
 - HX_TYPE2_LCD_ONLY_BOOTLOADER.bl.
- 9.3 Next press the "Program" button.
- 9.4 A "Confirm" window will be displayed asking you to confirm if the bootloader is the correct type for the radio. This is important as adding the wrong type of bootloader may stop the radio from functioning. Once you click on the Yes button, a list of installation operations should then be displayed with a status bar.
- 9.5 The installation of the bootloader will be complete when the status bar has reached the end and operation list should state: "Program ending..., connection Closed." and the radio's LED will glow **ORANGE**.
- 9.6 Turn the radio off.



10 DOWNLOADING THE LATEST FIRMWARE:

Once you have updated the bootloader, the radio will still be in flash mode & will remain in flash mode until after you have updated the firmware of the radio. But before you update the radio's firmware first check that your Entel Programmer has the latest version of Firmware for you radio installed.

- 10.1 Open Entel Programmer, On Entel Programmer's Menu Bar select "About" then "Update/Show Version Info".
- 10.2 This will display the "Update" Window, which will display all of the models available, the versions of DLL & Firmware (FW) installed & the latest versions available. If a newer update is available it will be indicated in red text in the 'Update' window.

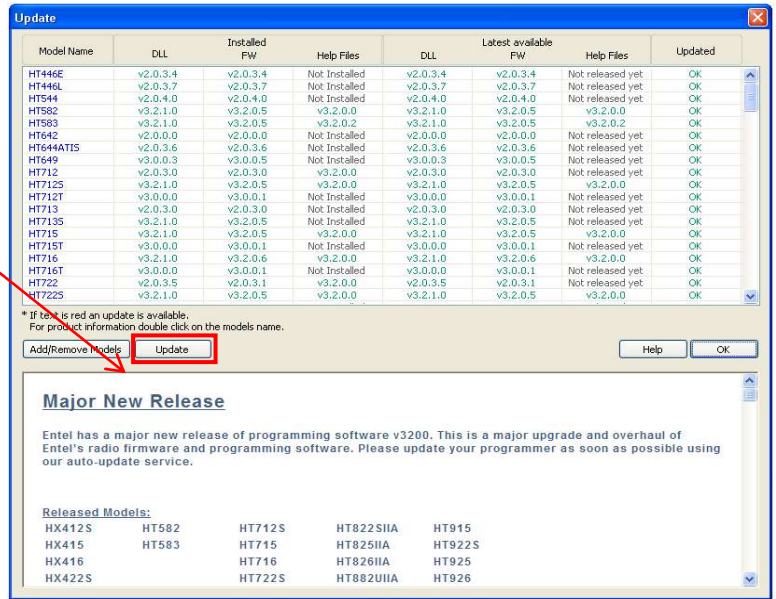


Update							
Model Name	DLL	Installed FW	Help Files	DLL	Latest available FW	Help Files	Updated
HT446E	v2.0.3.3	v2.0.3.2	Not Installed	v2.0.3.4	v2.0.3.4	Not released yet	Update available
HT446L	v2.0.3.7	v2.0.3.7	Not Installed	v2.0.3.7	v2.0.3.7	Not released yet	OK

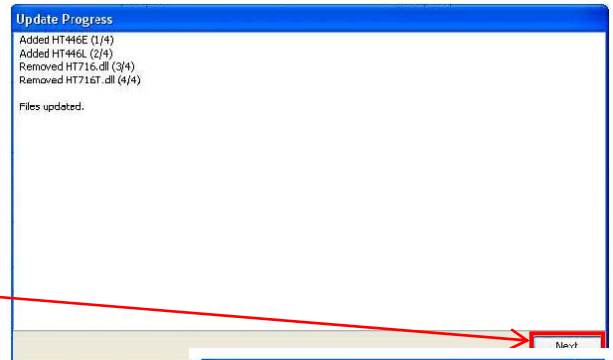
10 DOWNLOADING THE LATEST FIRMWARE: (CONTINUED)

(CONTINUED)

10.3 To update Entel Programmer with the latest files, click on the "Update" button.

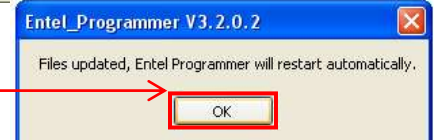


10.4 This will cause an "Update Progress" window to be displayed, which will list the new models that have been updated as well as any models that have been added or removed. Once the processes are completed it will state "File Updated".



10.5 Now press the "Next" button to close the window.

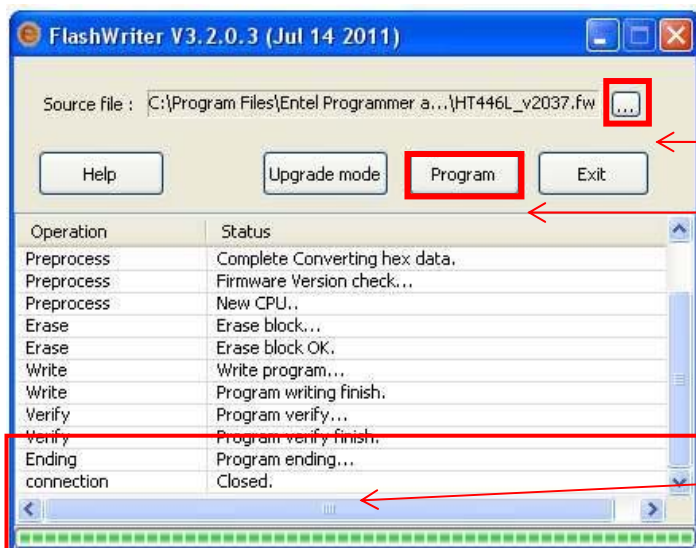
10.6 Once any updates have been performed Entel Programmer will need to restart so that the changes can be applied, to restart Entel Programmer click on the "OK" button.



10.7 Entel Programmer will now restart any apply the changes you have requested.

11 UPGRADING THE RADIO'S FIRMWARE:

To update the firmware of the radio:



11.1 Turn the radio on.

11.2 Select the firmware to update using the "... " button & then select the suitable firmware file for your model of radio.

11.3 Next press the "Program" button to update the firmware, the operation & status fields will display a list of installation operations along with a status bar.

11.4 The update of the firmware will be complete when the status bar has reached the end, & the operation list should state: "Program ending..., connection Closed." & the radio's LED will glow **ORANGE**.

11.5 Turn the radio off.

12 UPDATING THE CONFIGURATION OF THE RADIO:

Finally the configuration of the radio may need to be updated so that the settings are inline with the new bootloader & firmware of the radio. To update the configuration of the radio so that it matches the current DLL for the model:

12.1 Put the radio in "Programming Mode" by turning the radio on while holding the lower button on the side of the radio. This will cause the radio to beep once & the LED to flash between **GREEN & ORANGE**.

12.2 Using the Entel Programmer read the radio by selecting "Radio\Read" on Entel Programmer's Menu Bar OR click on the Read button

12.3 This will display a progress bar, while the the radio is being read.



12.4 Now write the updated program data to the radio by selecting "Radio\Write" on Entel Programmer's Menu Bar or click on the Write button, while the data is being written you will see a progress bar.



The configuration of the radio has now been updated using the model DLL.

The bootloader and the radio firmware has now been fully updated for the LCD.