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# Firmware Update Release 1.0

(Update: 23 March 2008)

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## Overview

The firmware of the 7330 is easily updated. Simple commands allow all firmware to be upgraded to a new version. The following files can be updated:

- SBOOT – the SCOM Bootloader
- DIAG – the 7330 Diagnostics
- CTRLA – the 7330 Repeater Controller
- Speech – the 7330 Speech Library

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**Note:** These instructions apply to any update from previous versions of firmware to the current release of firmware.

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**Warning:** this update procedure will erase all of your controller programming. Be sure you have all of your configuration recorded so that it can be reloaded after updating the firmware. It is recommended that controller commands be typed into a text file for easy downloading following an update. See *Chapter 8, Serial Port*, for more information.

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## Materials Required

The following materials are required to update the 7330 firmware:

- An RS-232 cable connection to the *Console Port* of the controller. By default and in Beta releases, this is a straight-through RS-232 cable, DE9S-to-DE9P connected to RS232-2. (See *Chapter 8, Serial Port*, for more information.)
- A terminal program that supports X-Modem protocol. For Windows, HyperTerm and TTermPro have been tested. On other operating systems, choose an appropriate terminal program.
- The 7330 files sent to you for this update.

## Setting Up When Updating From Beta Releases

Perform the following steps to prepare for a firmware update from a beta release:

1. Unplug the power to your 7330.
2. Remove the cover of your 7330
3. Install a jumper at the AUX2 position of jumper block J33. (Hint: this is the block with the PTT inversion jumpers.) You can borrow a jumper from one of the other jumper blocks while performing the firmware update.

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**Note:** When you have finished all the file updates, you must remove the AUX2 jumper for the 7330 to operate as a repeater controller once again. See the *Finishing Up* section, below.

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4. Install the RS-232 cable between your computer's RS-232 port and the serial port on the rear panel of the 7330 marked RS232-2.
5. Run the terminal program. (Note: Examples will use HyperTerm.)
6. Set the serial port parameters as follows:

Parameter	Value
Baudrate	57,600
Data bits	8
Parity	None
Stop bits	1

7. Plug in the power to your 7330. The LEDs on the front panel of your controller will scan left-to-right as an indication that your repeater is off-the-air. Also, the flashing LEDs indicate that the jumper is properly installed. Your screen will show the following display:

```
SBOOT S7330 V0.3.1

7330 Controller Storage Management

T - Show Time
Tmmddyymmssw - Set Time (w=0=Sunday)

S - Save Repeater Configuration
R - Restore Repeater Configuration
C - Cold Init of Repeater Configuration

I - Format Flash
Ef - Erase Files or Flash
Lf - Load File from PC to Flash
Uf - Upload File from Flash to PC
D - Flash Directory

Bf - Boot from Flash
H - Help

f, 0=Boot, 1=Diag, 2=Mfg, 3=CtrlA, 4=CtrlB, 5=Speech

Time: 071807-064614-3
Battery OK.
512KB SRAM
Flash already formatted.
Flash Sectors: 0x80
SBOOT>
```

## Setting Up When Updating From non-Beta Releases

Perform the following steps to prepare for a firmware update from a non-Beta release:

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**Note:** As of Release 1.0, you no longer have to remove the cover of the *7330 Controller* to install a jumper.

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1. Install the RS-232 cable between your computer's RS-232 port and the *Console* serial port on the rear panel of the 7330. By default, the *Console Port* is assigned to RS232-2. If you changed the assignment, install the cable to RS232-1 instead.
2. Run the terminal program. (Note: Examples will use HyperTerm.)
3. If using the defaults, set the serial port parameters as follows :

Parameter	Value
Baudrate	57,600
Data bits	8
Parity	None
Stop bits	1

If you changed the assignment or baudrate defaults, use the settings of the *Console Port* instead.

4. At the 7330 controller serial port prompt, enter the command SBOOT then press Enter. The LEDs on the front panel of your controller will scan left-to-right as an indication that your repeater is off-the-air. Also, the flashing LEDs indicate that SBOOT is running properly. Your screen will show the following display:

```
SBOOT S7330 V1.0.0

7330 Controller Storage Management

T - Show Time
Tmmddyymmssw - Set Time (w=0=Sunday)

S - Save Repeater Configuration
R - Restore Repeater Configuration
C - Cold Init of Repeater Configuration

I - Format Flash
Ef - Erase Files or Flash
Lf - Load File from PC to Flash
Uf - Upload File from Flash to PC
D - Flash Directory

P - Set Baudrate of Console Port
N - Set Baudrate of Auxiliary Port
W - Set Console Port Number

B - Boot from Flash
X - Reboot SBOOT from Flash
H - Help

f, 0=SBOOT, 1=DIAG, 2=Mfg, 3=CtrlA, 4=CtrlB, 5=Speech

Time: 032308-142947-0
Battery OK.
512KB SRAM
Flash already formatted.
Flash Sectors: 0x80
SBOOT>
```

## Working With The SBOOT Menu

The following commands are available in all SBOOT versions:

- H<enter> – enter at any time to display the help menu.
- T<enter> – display the current time in the controller.
- Tmddyhhmmssw<enter> – set the time in the controller.
- D<enter> -- display a list of the versions of the files currently stored in the controller.
- Ef<enter> -- erase a file. Replace the “f” with one of the selections from the menu: 0 = Boot, 1 = Diag, 3 = CtrlA, 5 = Speech. Other options are not currently supported.
- Lf<enter> -- Load a file from your computer to the controller. Replace the “f” with the location to store the file: 0 = Boot, 1 = Diag, 3 = CtrlA, 5 = Speech. . Other options are not currently supported.
- Some options on the menu may not be supported.

## Setting The Time

1. Verify the Time as shown. The format of the time display is :

mmddyhhmmssw

is 2-digit month (01-12), 2-digit day-of-month (01-31), 2-digit year (00-99), 2-digit hour (00-23, 24 hour format), 2-digit minute (00-59), 2-digit second (00-59), and 1-digit day-of-week (0-6, Sunday is 0, Monday is 1, Tuesday is 2, etc.)

2. If required, enter a new time with the following command:

Tmddyhhmmssw<enter>

## Display The Directory Of Files

1. Enter "D<enter>". The following list of files will be shown:

```
Controller Info
Model Number   : 7330
Serial Number  : Proto2
Manufactured DT: 070307-110844-2
Formatted DT   : 070307-110815-2
Customer Name  : Dave's Beta
```

### Directory/File Status

```
PROGRAMS
SBOOT
  FN : 7330_SBoot
  Ver : 1.0.0
  DT : 3/23/2008
  Type: Program
MFG
  No File Loaded
DIAG
  FN : 7330_Diag
  Ver : 1.0.0
  DT : 3/23/2008
  Type: Program
SCOM_A
  FN : 7330
  Ver : 3.0.5
  DT : 3/23/2008
  Type: Program
SCOM_B
  No File Loaded
RESTORE
  RESTORE_A
    No File Loaded
  RESTORE_B
    No File Loaded
SPEECH
LIB
  FN : 7XXX Words
  Ver : 0.0.1
  DT : 12/28/05
  Type: Speech Lib
```

The first section of the display, "Controller Info", shows information about your specific controller: the Model Number, Serial Number, etc.

The balance of the display "Directory/File" status shows the Name, Version, Date, and Type of file currently stored in your controller. We will be checking these versions to determine which files need to be updated.

## Updating SBOOT

Check the version of SBOOT on the Directory/File Status display. If the version shown on the display is older than the new version shipped to you in the update, perform the following steps. Otherwise, skip to Updating DIAG.

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**Caution:** do not remove power from the controller during the following steps! Doing so will make your controller inoperative and require a special recovery procedure. Call us if this happens!

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1. Erase the existing SBOOT program by entering the following command:

```
E0<enter>
```

You will see the following message displayed:

```
Erasing...Done.
```

2. Load the new version of SBOOT by entering the following command:

```
L0<enter>
```

You will see will see one or more “C” characters displayed.

3. In HyperTerm, send the new `SBOOT_x.y.z.bin` file using the X-Modem protocol. Click *Transfer*, then *Send File...* The *Send File* dialog is displayed. Click the *Browse* button and select the new `SBOOT_x.y.z.bin` file from the list of displayed files. In the *Protocol* drop-down, select *Xmodem*. Click on the *Send* button to send the file. A dialog is displayed showing the transfer status. When HyperTerm is done sending the file, the dialog disappears.
4. On the display, the following message is displayed:

```
CCCCCDone.
```

It is ok if a different number of “C” characters are shown.

At this point the new file has been successfully loaded into the flash.

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**Note:** Once the new version of `SBOOT_x.y.z.bin` is successfully loaded into the flash, it is safe once again to remove the power from the controller, though not necessary at this time.

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5. Display the directory and verify the version of the new file:

```
D<enter>
```

## Updating DIAG (Diagnostics)

Check the version of DIAG on the Directory/File Status display. If the version shown on the display is older than the new version shipped to you in the update, perform the following steps. Otherwise, skip to Updating Repeater Firmware.

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**Note:** The restriction on power cycling of the controller does not apply to DIAG.

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1. Erase the existing DIAG program by entering the following command:

```
E1<enter>
```

You will see the following message displayed:

```
Erasing...Done.
```

2. Load the new version of DIAG by entering the following command:

```
L1<enter>
```

You will see will see one or more “C” characters displayed.

3. In HyperTerm, send the new `DIAG_x.y.z.bin` file using the X-Modem protocol. Click *Transfer*, then *Send File...* The *Send File* dialog is displayed. Click the *Browse* button and select the new `DIAG_x.y.z.bin` file from the list of displayed files. In the *Protocol* drop-down, select *Xmodem*. Click on the *Send* button to send the file. A dialog is displayed showing the transfer status. When HyperTerm is done sending the file, the dialog disappears.
4. On the display, the following message is displayed:

```
CCCCCDone.
```

It is ok if a different number of “C” characters are shown.

At this point the new file has been successfully loaded into the flash.

5. Display the directory and verify the version of the new file:

```
D<enter>
```

## Updating 7330 Repeater Firmware (CtrlA/SCOM\_A)

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**Note:** The Directory display and the SBOOT menu currently use two different names, CtrlA and SCOM\_A, to refer to the same file, the 7330 repeater program. This will be fixed in an upcoming release. In these instructions, we'll refer to this file as CtrlA/SCOM\_A.

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Check the version of SCOM\_A on the Directory/File Status display. If the version shown on the display is older than the new version shipped to you in the update, perform the following steps:

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**Note:** The restriction on power cycling of the controller does not apply to CtrlA/SCOM\_A.

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1. Erase the existing CtrlA/SCOM\_A program by entering the following command:

```
E3<enter>
```

You will see the following message displayed:

```
Erasing...Done.
```

2. Load the new version of CtrlA/SCOM\_A by entering the following command:

```
L3<enter>
```

You will see will see one or more "C" characters displayed.

3. In HyperTerm, send the new 7330\_x.y.z.bin file using the X-Modem protocol. Click *Transfer*, then *Send File...* The *Send File* dialog is displayed. Click the *Browse* button and select the new 7330\_x.y.z.bin file from the list of displayed files. In the *Protocol* drop-down, select *Xmodem*. Click on the *Send* button to send the file. A dialog is displayed showing the transfer status. When HyperTerm is done sending the file, the dialog disappears.
4. On the display, the following message is displayed:

```
CCCCCDone.
```

It is ok if a different number of "C" characters are shown.

At this point the new file has been successfully loaded into the flash.

5. Display the directory and verify the version of the new file:

```
D<enter>
```

## Updating SPEECH

Check the version of SPEECH on the Directory/File Status display. If the version shown on the display is older than the new version shipped to you in the update, perform the following steps. Otherwise, skip to Finishing Up.

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**Note:** The restriction on power cycling of the controller does not apply to SPEECH.

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1. Erase the existing SPEECH program by entering the following command:

```
E5<enter>
```

You will see the following message displayed:

```
Erasing...Done.
```

This can take up to 2 minutes.

2. Load the new version of SPEECH by entering the following command:

```
L5<enter>
```

You will see will see one or more “C” characters displayed.

3. In HyperTerm, send the new `7xxx_words_0.0.1.bin` file using the X-Modem protocol. Click *Transfer*, then *Send File...* The *Send File* dialog is displayed. Click the *Browse* button and select the new `7xxx_words_0.0.1.bin` file from the list of displayed files. In the *Protocol* drop-down, select *Xmodem*. Click on the *Send* button to send the file. A dialog is displayed showing the transfer status. When HyperTerm is done sending the file, the dialog disappears.
4. On the display, the following message is displayed:

```
CCCCCDone.
```

It is ok if a different number of “C” characters are shown.

At this point the new file has been successfully loaded into the flash.

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**Note:** In the current version of firmware, there have been reports of the “Done” message not being displayed when HyperTerm reports that the transfer is complete. If this happens, start the download again at step 7.

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5. Display the directory and verify the version of the new file:

```
D<enter>
```

## Finishing Up When Updating From a Beta Release

Your files have been updated. Only a few more steps are required to finish up:

1. Unplug the power to your 7330.
2. Unplug the RS-232 cable.
3. Remove the jumper you installed at the AUX2 position of jumper block J33.
4. Install the cover of the controller.

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**Note:** It is important to Cold-Init your controller at this time! Changes were made that are incompatible with the previous configuration.

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5. Hold the INIT button and plug the power into your 7330. It will start with the familiar CW message “? RES C”. The front panel will light the PTT LED for Port 1 while the message is played. If the front panel LEDs are lighting left-to-right as before, the AUX2 jumper hasn’t been removed.
6. Send the programming commands to your controller to changes your messages, macros, timers, etc., since the Cold-Init erased them.
7. The update is complete!

## Finishing Up When Updating From non-Beta Releases

Your files have been updated. Only a few more steps are required to finish up:

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**Note:** It is important to Cold-Init your controller at this time! Changes were made that are incompatible with the previous configuration.

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1. Hold the INIT button and press the RESET button on the back of your 7330. It will start with the familiar CW message “? RES C”. The front panel will light the PTT LED for Port 1 while the message is played. If the front panel LEDs are lighting left-to-right as before, there was a problem in updating the 7330 Repeater Firmware. Repeat that step.
2. Send the programming commands to your controller to changes your messages, macros, timers, etc., since the Cold-Init erased them.
3. The update is complete!