Firmware Update
Release 1.9

(Update: May 12, 2024)

Overview

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

Location	File	Description
SBOOT	**SBOOT_1.8.1.bin**	7330 S-COM Bootloader
DIAG	**DIAG_1.2.0.bin**	7330 Diagnostics
SCOM_A	**7330_3.8.1.bin**	7330 Repeater Controller
LIB	**SpLibEng_1.3.bin**	7330 Standard Speech Library
CUSTOM	**Custom Audio Library**	Your Custom Audio Library
SBOOT Recovery	**SBOOT_1.8.1.S19**	7330 S-COM Bootloader Recovery File

Note: These instructions apply to any update from previous versions of firmware to the current release of firmware. You can skip all the intermediate versions. See the *Where To Start* section on page 2 for tips on how to identify the software that's currently loaded in your controller and where to begin your update.

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 cable is a straight-through RS-232 cable, DE9S-to-DE9P connected to the RS232-2 connector of the controller. (See *Chapter 8, Serial Port,* for more information.)
- A terminal program that supports X-Modem protocol. For Windows, TeraTerm is preferred, HyperTerm has been tested. Linux users successfully use Minicom. On other operating systems, choose an appropriate terminal program.
- The 7330 files for this release. The latest release is available at:

  http://www.scomcontrollers.com

Note: At S-COM, we prefer to use *TeraTerm* on Windows instead of *HyperTerm*. We've found that HyperTerm is just too difficult for many users to configure. See the Chapter 8, Serial Port, in the User Manual for additional configuration details.

Where To Start

There are separate procedures to update the firmware in your controller depending on the version of firmware currently installed in your controller and whether you need to recover your controller from a problem with the firmware load. Here's a table you can use to identify the firmware release installed on your controller:

Release	Go To	Repeater Version	SBOOT Version
1.1 or Newer	Page 3	3.06 or Newer	1.1.0 or Newer
1.0	Page 25	3.05	1.0.0
Beta	Page 30	3.01 thru 3.04	0.3.1
Recovery	Page 36	All	All

Warning: this update procedure may erase your controller programming. Be sure you have your configuration saved or recorded so that it can be reloaded after updating the firmware, if required. We recommend that controller commands be typed into a text file for easy downloading following an update. You can also save the configuration in the flash memory of the controller. See *Chapter 8, Serial Port,* for more information on serial command formats and Configuration Management.

Updating From Release 1.1 and newer

To update the firmware or speech libraries of your controller, you will use the commands of the built-in SBOOT utility. This utility has commands to display the current versions, erase file locations, upload and download files, set the time and other functions. You can view information about using the SBOOT commands in the User Manual starting on page 8-18.

To update one or more files in your controller from Release 1.1 or newer, perform the following steps.

Note: As of Release 1.0, you no longer have to remove the cover of the *7330 Controller* to install a jumper to perform a firmware update. Instead, you will enter a console command to the controller to stop the repeater controller program and execute the SBOOT utility.

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 of the *Console Port*, install the cable to RS232-1.

2. Run the terminal program. (*Note*: Examples will use TeraTerm.)

3. At the 7330 controller serial console port prompt, type `sboot<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. The flashing LEDs also indicate that SBOOT is running properly. Your screen will show the following display:

```
SCOM 7330 SBOOT V1.4.0

7330 Controller Storage Management

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

 S  - Save Repeater Configuration
 R  - Restore Repeater Configuration

 E  - Erase Files
 L  - Load File from a PC to Flash
 U  - Upload File from Flash to a 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

Time: 091708-091211-3
Battery OK.
SBOOT>
```

Note: The following commands are available in SBOOT version 1.1.0 and newer:

- `H<enter>` – enter at any time to display the help menu.
- `T<enter>` – display the current time in the controller.
- `Tmmddyyhhmmssw<enter>` – set the time in the controller.
- `D<enter>` -- display a list of the files and their versions currently stored in the controller.
- `E<enter>` -- erase a file. A submenu is presented.
- `L<enter>` -- Load a file from your computer to the controller using X-Modem-CRC. A submenu is presented.
- `S<enter>` -- Save Repeater Configuration. A submenu is presented.
- `R<enter>` -- Restore Repeater Configuration. A submenu is presented.
- Some options on the menu may not be supported in your version.

Set the Time

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

    ```
    mmddyy-hhmmss-w
    ```

    is the 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 the 1-digit day-of-week (0-6, Sunday is 0, Monday is 1, Tuesday is 2, etc.)

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

    ```
    tmmddyyhhmmssw<enter>
    ```

Display the Directory of Files

6. Type `D<enter>`. The following list of files will be shown:

```
Controller Information
  Model Number   : 7330
  Serial Number  : Proto2
  Manufactured DT: 091709-065554-4
  Formatted DT   : 091709-065458-4
  Customer Name  : Dave's Beta

Firmware Files
  Location       Name             Version  Date             Type
  -------------  ---------------- -------- ---------------- --------------------
  SYSTEM         BootROM          1.2.0
  SBOOT          7330_SBoot       1.2.1    12/22/2009       Program
  MFG            No File
  DIAG           7330_Diag        1.2.0    9/4/2009         Program
  SCOM_A         7330             3.2.2    11/7/2010        Program
  SCOM_B         No File

Configuration Files
  Location       Name             Version  Date             Type
  -------------  ---------------- -------- ---------------- --------------------
  CONFIG_A       Active140611              6/11/14 09:27    Configuration
  CONFIG_B       ColdReset140328           3/28/14 15:11   Configuration
  CONFIG_C       No File
  CONFIG_D       No File

Speech Files
  Location       Name             Version  Date             Type
  -------------  ---------------- -------- ---------------- --------------------
  LIB            SCOM Sp Lib Eng  1.2.0    5/8/2011         Speech Library
  CUSTOM         SCOM Cust ALib   1.0.0    09/09/09 12:00   Custom Audio Library
```

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

The balance of the display shows the Location, Name, Version, Date, and Type of file currently stored in each storage location in your controller. We will be checking these versions to determine which files need to be updated.

Save Your Active Configuration

SBOOT version 1.4 and newer versions enable the *Save Repeater Configuration* menu option. This command lets you save your Active Configuration (the configuration of your repeater) to an empty CONFIG file location. Once stored, you can easily restore your repeater configuration as your Active Configuration after your firmware update.

Note: In earlier versions of SBOOT, Save and Restore Configuration is not available for storing your Active Configuration with the flash memory of your controller. You will need to reload your programming by sending your original programming text file from your PC after the firmware update.

---

7. Type S<enter>. The following menu is shown:

```
Save the Controller Configuration to a Flash File:

        Location    Description
    5 - CONFIG_A -- Configuration A
    6 - CONFIG_B -- Configuration B
    7 - CONFIG_C -- Configuration C
    8 - CONFIG_D -- Configuration D
```

Choose an empty CONFIG location from the directory displayed above, then select that menu option to save your active configuration into that empty CONFIG location:

```
    5<enter>
```

If there isn't an empty CONFIG location, you will need to erase one before proceeding. You can transfer the contents of a CONFIG location to your PC for storage if required.

At the end of the firmware updates (see page Firmware Update-17), you will Restore Your Active Configuration from this CONFIG location.

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 forward to update other files beginning on page 11, *Updating DIAG (Diagnostics)*.

Caution: do not remove power from the controller during the following steps! Doing so will make your controller inoperative and require a hands-on recovery procedure. If power does go out, follow the steps starting on page 37 to recover your controller,.

---

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

   ```
   e<enter>
   ```

   You will see the following submenu:

   ```
   Erase a File from Flash:
       0 - SBOOT     -- File Management Utility
       1 - DIAG      -- Diagnostics
       2 - SCOM_A    -- 7330 Repeater Controller
       3 - LIB       -- Speech Library
       4 - CUSTOM    -- Custom Audio Library
       5 - CONFIG_A -- Configuration A
       6 - CONFIG_B -- Configuration B
       7 - CONFIG_C -- Configuration C
       8 - CONFIG_D -- Configuration D
       9 - Active Configuration
       Q - Return to Main Menu
       H - Redisplay these options

       Enter File Erase Option>
   ```

   Select the option to erase SBOOT (*Tip:* use zero):

   ```
   0<enter>
   ```

   You will be asked to confirm the erase:

   ```
   Enter Y to erase the file, N to cancel>y
   ```

   You will see the following message displayed:

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

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

```
L<enter>
```

You will see the following submenu:

```
Load a File to Flash from a PC:
   0 - SBOOT    -- File Management Utility
   1 - DIAG     -- Diagnostics
   2 - SCOM_A   -- 7330 Repeater Controller
   3 - LIB      -- Speech Library
   4 - CUSTOM   -- Custom Audio Library
   5 - CONFIG_A -- Configuration A
   6 - CONFIG_B -- Configuration B
   7 - CONFIG_C -- Configuration C
   8 - CONFIG_D -- Configuration D
   Q - Return to Main Menu
   H - Redisplay these options

   Enter File Load Option>
```

Select the option to load SBOOT (*Tip:* use zero):

```
0<enter>
```

You will be asked to confirm the load:

```
Enter Y to load the file, N to cancel>y
```

You will be asked to confirm the erase of the selected location. (This command was added in SBOOT Version 1.4.1. You do not need to do this again if you erased this location previously.)

```
Erase this location before the load?

Enter Y to Erase, N to Continue>y
```

You will now see one or more "C" characters displayed. These are being sent by the controller to tell your terminal emulator that it's ready to receive the file using *XModem-CRC*.

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

3. In TeraTerm, send the new `SBOOT_x.y.z.bin` file using the X-Modem protocol. Click *File,Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `SBOOT_x.y.z.bin` file from the list of displayed files. Select the CRC transfer option if one is available. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

4. On the display, the following message is displayed:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5, below.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file and selecting CRC. You must **not** be using the Tera Term *File, Send File…* command; this command will not work as it does not use the X-Modem-CRC protocol for the transfer.

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.

---

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

    ```
    D<enter>
    ```

6. Load and execute the new version of SBOOT from the flash by entering the following command:

    ```
    B<enter>
    ```

    You will see the following submenu:

    ```
    Load and Execute a Program from Flash:
        0 - SBOOT
        1 - Diagnostics
        2 - 7330 Repeater Controller
        3 - 7330 Repeater Controller - Cold Start, Erase Your Programming
        Q - Return to Main Menu
        H - Redisplay these options

    Enter Load and Execute Option>
    ```

    Select the option to load and execute SBOOT (*Tip:* use zero):

    ```
    0<enter>
    ```

    If you're updating from SBOOT version 1.1.0, the new version of SBOOT automatically prepares the controller for the new Custom Audio Library support. You will see the following message when it starts:

    ```
    Custom Audio Library upgrade in progress...Done.
    ```

    If you're updating a newer version, you will not see this message. You're controller already supports the Custom Audio Library.

    If you're updating from SBOOT version 1.1.0, the new version of SBOOT automatically prepares the controller for the new Configuration File Management support. You will see the following message when it starts:

    ```
    Configuration Upgrade in Progress...Done.
    ```

    If you're updating a newer version, you will not see this message. You're controller already supports Configuration File Management.

7. Continue updates of your controller on the next page.

Updating DIAG (Diagnostics)

Check the version of DIAG on the Directory/File Status display as shown on page 5 by typing `d<enter>`. 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 7330 Repeater Controller Program* on page 14.

Note: The restriction on power cycling of the controller does not apply to DIAG. If you turn off the power during a DIAG update, you should start over at step 1 on this page.

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

   ```
   E<enter>
   ```

   You will see the following submenu:

   ```
   Erase a File from Flash:
       0 - SBOOT     -- File Management Utility
       1 - DIAG      -- Diagnostics
       2 - SCOM_A    -- 7330 Repeater Controller
       3 - LIB       -- Speech Library
       4 - CUSTOM    -- Custom Audio Library
       5 - CONFIG_A -- Configuration A
       6 - CONFIG_B -- Configuration B
       7 - CONFIG_C -- Configuration C
       8 - CONFIG_D -- Configuration D
       9 - Active Configuration
       Q - Return to Main Menu
       H - Redisplay these options

   Enter File Erase Option>
   ```

   Select the option to erase Diagnostics

   ```
   1<enter>
   ```

   You will be asked to confirm the erase:

   ```
   Enter Y to erase the file, N to cancel>y
   ```

   You will see the following message displayed:

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

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

```
L<enter>
```

You will see the following submenu:

```
Load a File to Flash from a PC:
    0 - SBOOT     -- File Management Utility
    1 - DIAG      -- Diagnostics
    2 - SCOM_A    -- 7330 Repeater Controller
    3 - LIB       -- Speech Library
    4 - CUSTOM    -- Custom Audio Library
    5 - CONFIG_A -- Configuration A
    6 - CONFIG_B -- Configuration B
    7 - CONFIG_C -- Configuration C
    8 - CONFIG_D -- Configuration D
    Q - Return to Main Menu
    H - Redisplay these options

  Enter File Load Option>
```

Select the option to load Diagnostics

```
1<enter>
```

You will be asked to confirm the load:

```
Enter Y to load the file, N to cancel>y
```

You will be asked to confirm the erase of the selected location. (This command was added in SBOOT Version 1.4.1. You do not need to do this again if you erased this location previously.)

```
Erase this location before the load?

Enter Y to Erase, N to Continue>y
```

You will now see one or more "C" characters displayed. These are being sent by the controller to tell your terminal emulator that it's ready to receive the file using *XModem-CRC*.

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

3. In TeraTerm, send the new `DIAG_x.y.z.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `DIAG_x.y.z.bin` file from the list of displayed files. Select the CRC transfer option if available. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

4. On the display, the following message is displayed:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work.

Note: A normal upload usually takes less than 30 seconds. If SBOOT recognizes a file compatibility issue, it could take up to 2 minutes for the transfer to be canceled.

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

```
D<enter>
```

Updating 7330 Repeater Controller Program (SCOM_A)

Note: The SBOOT Directory display uses the name `SCOM_A` to refer to the storage location for the 7330 Repeater Controller program. The update process described below first erases the `SCOM_A` location then copies a new version of the 7330 Repeater Controller firmware to the `SCOM_A` location.

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. Otherwise, skip to *Updating The Standard Speech Library* on page 18.

Note: The restriction on power cycling of the controller does not apply to the 7330 Repeater Controller program.

---

1. Erase the existing `SCOM_A` program by entering the following command:

    ```
    E<enter>
    ```

    You will see the following submenu:

    ```
    Erase a File from Flash:
        0 - SBOOT    -- File Management Utility
        1 - DIAG     -- Diagnostics
        2 - SCOM_A   -- 7330 Repeater Controller
        3 - LIB      -- Speech Library
        4 - CUSTOM   -- Custom Audio Library
        5 - CONFIG_A -- Configuration A
        6 - CONFIG_B -- Configuration B
        7 - CONFIG_C -- Configuration C
        8 - CONFIG_D -- Configuration D
        9 - Active Configuration
        Q - Return to Main Menu
        H - Redisplay these options

    Enter File Erase Option>
    ```

    Select the option to erase the 7330 Repeater Controller program:

    ```
    2<enter>
    ```

You will be asked to confirm the erase:

```
Enter Y to erase the file, N to cancel>y
```

You will see the following message displayed:

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

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

```
L<enter>
```

You will see the following submenu:

```
Load a File to Flash from a PC:
   0 - SBOOT    -- File Management Utility
   1 - DIAG     -- Diagnostics
   2 - SCOM_A   -- 7330 Repeater Controller
   3 - LIB      -- Speech Library
   4 - CUSTOM   -- Custom Audio Library
   5 - CONFIG_A -- Configuration A
   6 - CONFIG_B -- Configuration B
   7 - CONFIG_C -- Configuration C
   8 - CONFIG_D -- Configuration D
   Q - Return to Main Menu
   H - Redisplay these options

Enter File Load Option>
```

Select the option to load the 7330 Repeater Controller program:

```
2<enter>
```

You will be asked to confirm the load:

```
Enter Y to load the file, N to cancel>y
```

You will be asked to confirm the erase of the selected location. (This command was added in SBOOT Version 1.4.1. You do not need to do this again if you erased this location previously.)

```
Erase this location before the load?

Enter Y to Erase, N to Continue>y
```

You will now see will see one or more "C" characters displayed. These are being sent by the controller to tell your terminal emulator that it's ready to receive the file using *XModem-CRC*.

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

3. In TeraTerm, send the new `7330_x.y.z.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `7330_x.y.z.bin` file from the list of displayed files. Select the CRC transfer option if available. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

4. On the display, the following message is displayed:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work since it does not use the X-Modem protocol.

Note: A normal upload usually takes less than 30 seconds. If SBOOT recognizes a file compatibility issue, it could take up to 2 minutes for the transfer to be canceled.

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

```
D<enter>
```

Erase Your Active Configuration

You **must** erase your Active Configuration so that its format matches the new firmware version. This step sets the Active Configuration to factory defaults that match the latest version of firmware that you just installed.

Type `E<enter>`. The following menu is shown (other entries not shown for clarity):

```
Erase a File from Flash:

    Location    Description
9 – Active Configuration
```

Choose the active configuration location to erase it:

```
9<enter>
```

The factory defaults have been loaded into your reformatted Active Configuration.

Restore Your Saved Configuration

SBOOT version 1.4 and newer versions have the *Restore a Controller Configuration from a Flash File* menu option. Before you installed this latest firmware update, you saved your Active Configuration to an empty CONFIG file flash memory location. Using the Restore menu option, you can easily restore your saved configuration to your Active Configuration for use by the new firmware.

Now restore your saved configuration as the active configuration:

1. Type `R<enter>`. The following menu is shown:

```
Restore a Controller Configuration from a Flash File:

      Location    Description
5 - CONFIG_A -- Configuration A
6 - CONFIG_B -- Configuration B
7 - CONFIG_C -- Configuration C
8 - CONFIG_D -- Configuration D
```

From this menu, choose the CONFIG location you want to restore:

```
5<enter>
```

Any new features that were added in this firmware update have been set to their defaults as documented in the manual.

Updating the Standard Speech Library

Check the version of LIB on the Speech Files section of the SBOOT 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 Your Custom Audio Library* on page 21.

Note: The restriction on power cycling of the controller does not apply to speech files.

Note: As of Release 1.1, the full Speech Library is quite large and will require extra time to complete erase and load operations. For the shortest load time, we recommend that you set the baudrate of the *Console Port* to 57,600 baud. See Chapter 8, Serial Port, of the 7330 Repeater Controller manual on configuring the serial port.

---

1. Erase the existing Speech Library file by entering the following command:

   ```
   E<enter>
   ```

   You will see the following submenu:

   ```
   Erase a File from Flash:
       0 - SBOOT    -- File Management Utility
       1 - DIAG     -- Diagnostics
       2 - SCOM_A   -- 7330 Repeater Controller
       3 - LIB      -- Speech Library
       4 - CUSTOM   -- Custom Audio Library
       5 - CONFIG_A -- Configuration A
       6 - CONFIG_B -- Configuration B
       7 - CONFIG_C -- Configuration C
       8 - CONFIG_D -- Configuration D
       9 - Active Configuration
       Q - Return to Main Menu
       H - Redisplay these options

   Enter File Erase Option>
   ```

   Select the option to erase the Speech Library:

   ```
   3<enter>
   ```

   You will be asked to confirm the erase:

   ```
   Enter Y to erase the file, N to cancel>y
   ```

   You will see the following message displayed:

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

   Erasing of this file can take up to 2 minutes.

---

2. Load the new version of the Speech Library file by entering the following command:

```
L<enter>
```

You will see the following submenu:

```
Load a File to Flash from a PC:
    0 - SBOOT    -- File Management Utility
    1 - DIAG     -- Diagnostics
    2 - SCOM_A   -- 7330 Repeater Controller
    3 - LIB      -- Speech Library
    4 - CUSTOM   -- Custom Audio Library
    5 - CONFIG_A -- Configuration A
    6 - CONFIG_B -- Configuration B
    7 - CONFIG_C -- Configuration C
    8 - CONFIG_D -- Configuration D
    Q - Return to Main Menu
    H - Redisplay these options


Enter File Load Option>
```

Select the option to load the Speech Library:

```
3<enter>
```

You will be asked to confirm the load:

```
Enter Y to load the file, N to cancel>y
```

You will be asked to confirm the erase of the selected location. (This command was added in SBOOT Version 1.4.1. You do not need to do this again if you erased this location previously.)

```
Erase this location before the load?


Enter Y to Erase, N to Continue>y
```

You will now see will see one or more "C" characters displayed. These are being sent by the controller to tell your terminal emulator that it's ready to receive the file using *XModem-CRC*.

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

3. In TeraTerm, send the new `SpLibEng_x.y.z.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `SpLibEng_x.y.z.bin` file from the list of displayed files. Select the CRC transfer option if available. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. Loading of this file can take up to 30 minutes at 57,600 baud. Lower baudrates take proportionately longer. When TeraTerm is done sending the file, the dialog disappears.

4. On the display, the following message is displayed:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work.

Note: In the current version of firmware, there have been reports of the "`Done`" message not being displayed when TeraTerm reports that the transfer is complete. If this happens, start the download again at step 2.

---

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

```
D<enter>
```

Updating Your Custom Audio Library

During firmware updates of the controller, your Custom Audio Library file has not been modified. At any time, you can check your version of CUSTOM on the Speech Files section of the SBOOT Directory/File Status display. If you wish to replace your Custom Audio Library file with a different one, follow the instructions below.

If you do not need to update your Custom Audio Library at this time, skip to *Finishing Up* on page 24.

Note: The restriction on power cycling of the controller does not apply to speech files.

Note: A Custom Audio Library is quite large and will require extra time to complete erase and load operations. For the shortest load time, we recommend that you set the baud rate of the *Console Port* to 57,600 baud. See chapter 8 of the 7330 Repeater Controller manual.

---

1. Erase the existing Custom Audio Library file by entering the following command:

   ```
   E<enter>
   ```

   You will see the following submenu:

   ```
   Erase a File from Flash:
       0 - SBOOT    -- File Management Utility
       1 - DIAG     -- Diagnostics
       2 - SCOM_A   -- 7330 Repeater Controller
       3 - LIB      -- Speech Library
       4 - CUSTOM   -- Custom Audio Library
       5 - CONFIG_A -- Configuration A
       6 - CONFIG_B -- Configuration B
       7 - CONFIG_C -- Configuration C
       8 - CONFIG_D -- Configuration D
       9 - Active Configuration
       Q - Return to Main Menu
       H - Redisplay these options

   Enter File Erase Option>
   ```

   Select the option to erase the Custom Audio Library:

   ```
   4<enter>
   ```

   You will be asked to confirm the erase:

   ```
   Enter Y to erase the file, N to cancel>y
   ```

   You will see the following message displayed:

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

Erasing of this file can take up to 2 minutes.

2. Load the new version of the Custom Audio Library file by entering the following command:

```
L<enter>
```

You will see the following submenu:

```
Load a File to Flash from a PC:
   0 - SBOOT    -- File Management Utility
   1 - DIAG     -- Diagnostics
   2 - SCOM_A   -- 7330 Repeater Controller
   3 - LIB      -- Speech Library
   4 - CUSTOM   -- Custom Audio Library
   5 - CONFIG_A -- Configuration A
   6 - CONFIG_B -- Configuration B
   7 - CONFIG_C -- Configuration C
   8 - CONFIG_D -- Configuration D
   Q - Return to Main Menu
   H - Redisplay these options

Enter File Load Option>
```

Select the option to load the Custom Audio Library:

```
4<enter>
```

You will be asked to confirm the load:

```
Enter Y to load the file, N to cancel>y
```

You will be asked to confirm the erase of the selected location. (This command was added in SBOOT Version 1.4.1. You do not need to do this again if you erased this location previously.)

```
Erase this location before the load?

Enter Y to Erase, N to Continue>y
```

You will now see will see one or more "C" characters displayed. These are being sent by the controller to tell your terminal emulator that it's ready to receive the file using *XModem-CRC*.

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

3. In TeraTerm, send the new `CustomAudioLib.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `CustomAudioLib.bin` file from the list of displayed files. Select the CRC transfer option if available. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

The time it takes to load this file depends on the size of your `CustomAudioLib.bin` file. It can take approximately 5 minutes per megabyte at 57,600 baud. Lower baud rates take proportionately longer.

4. On the display, the following message is displayed:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem. Start XModem Send-CRC...
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work.

Note: In the current version of firmware, there have been reports of the "`Done`" message not being displayed when TeraTerm reports that the transfer is complete. If this happens, start the download again at step 2. Do not erase the file before reloading.

---

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

```
D<enter>
```

Finishing Up When Updating From Release 1.1 or Newer

Your files have been updated.

1. Execute the 7330 Repeater firmware by entering the following command at the SBOOT prompt:

```
X<enter>
```

When you restored your saved configuration as your active configuration, the restored configuration was upgraded to be compatible with the new firmware version.

Note: When the 7330 Repeater firmware starts, it checks to be sure the current Active Configuration format is compatible with the new version of firmware. If it isn't compatible, the firmware reports this issue by displaying this message:

```
Error: Mismatched firmware versions! Must fix now!
```

To fix this issue, execute the SBOOT command and Erase the Active Configuration (see page 8-21). You will need to again restore your configuration.

---

2. If you saved your configuration before you performed the firmware update, you should have already restored it (see page Firmware Update-17) and skip step 3.

3. If you weren't able to save your configuration, you will need to reload your programming from your original programming text file or a saved binary configuration file. See pages 8-13 and 8-25 in the User's Manual.

4. If you changed your serial port configuration to perform the update, change your *Console Port* configuration back to the way you had it.

The update is complete!

Updating From Release 1.0

Perform the following steps to prepare for a firmware update from Release 1.0:

Note: As of Release 1.0, you no longer have to remove the cover of the *7330 Controller* to install a jumper to perform a firmware update. Instead, you will enter a console command to the controller to stop the repeater controller and execute SBOOT.

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 of the *Console Port*, install the cable to RS232-1.

2. Run the terminal program. (Note: Examples will use TeraTerm.)

3. At the 7330 controller serial port prompt, type `sboot<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. The flashing LEDs also 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
 Tmmddyyhhmmssw - 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>
```

Note: The following commands are available in SBOOT version 1.0.0:

- `H<enter>` – enter at any time to display the help menu.
- `T<enter>` – display the current time in the controller.
- `Tmmddyyhhmmssw<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 the location of the file to erase:

  `0 = Boot, 1 = Diag, 3 = SCOM_A/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 = SCOM_A/CtrlA, 5 = Speech`

  Other options are not currently supported.
- Some options on the menu may not be supported.

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

    `mmddyy-hhmmss-w`

   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.)

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

    `tmmddyyhhmmssw<enter>`

6. Type `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.

7. 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, go back to page 11 to update other files.

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!

---

8. Erase the existing SBOOT program by entering the following command (*Tip:* use zero):

```
E0<enter>
```

You will see the following message displayed:

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

9. Load the new version of SBOOT by entering the following command (*Tip:* use zero):

```
L0<enter>
```

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

10. In TeraTerm, send the new `SBOOT_x.y.z.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `SBOOT_x.y.z.bin` file from the list of displayed files. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

11. On the display, the following message is displayed:

```
CCCCC
Done.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 12.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem…
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 37.) You will then see:

```
Transfer the file to flash using XModem…
CCCCC
Load Cancelled.
```

Go back to step 9 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work.

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.

---

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

```
D<enter>
```

13. Load and execute the new version of SBOOT from the flash by entering the following command:

```
B<enter>
```

You will see the following submenu:

```
Load and Execute a Program from Flash:
    0 - SBOOT
    1 - Diagnostics
    2 - 7330 Repeater Controller
    3 - 7330 Repeater Controller - Cold Start, Erase Your Programming
    Q - Return to Main Menu
    H - Redisplay these options

Enter Load and Execute Option>
```

Select the option to load and execute SBOOT:

```
0<enter>
```

When started for the first time, the new version of SBOOT automatically prepares the controller for the new Custom Audio Library support. You will see the following message when it starts:

```
Custom Audio Library upgrade in progress...Done.
```

Note: The new version of SBOOT uses a new menu style for Erase, Load and Boot of files. The next section will use these new commands.

14. Continue updates of your controller on page 11. Come back to page 36 to finish up.

Updating From Any Beta Release

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.

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.

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 TeraTerm.)

6. 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
 Tmmddyyhhmmssw - 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>
```

Note: The following commands are available in SBOOT version 0.3.1:

- `H<enter>` – enter at any time to display the help menu.
- `T<enter>` – display the current time in the controller.
- `Tmmddyyhhmmssw<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 the location of the file to erase:

    `0 = Boot, 1 = Diag, 3 = SCOM_A/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 = SCOM_A/CtrlA, 5 = Speech`

    Other options are not currently supported.
- Some options on the menu may not be supported.

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

```
mmddyy-hhmmss-w
```

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.)

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

```
tmmddyyhhmmssw<enter>
```

9. Type 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 : 0.3.1
     DT  : 7/3/2007
     Type: Program
  MFG
     No File Loaded
  DIAG
     FN  : 7330_Diag
     Ver : 0.5.1
     DT  : 7/14/2007
     Type: Program
  SCOM_A
     FN  : 7330
     Ver : 3.0.1
     DT  : 7/15/2007
     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.

10. 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 update other files on page 11.

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!

11. Erase the existing SBOOT program by entering the following command (*Tip:* use zero):

```
E0<enter>
```

You will see the following message displayed:

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

12. Load the new version of SBOOT by entering the following command (*Tip:* use zero):

```
L0<enter>
```

You will see will see one or more "C" characters displayed. The controller will wait 60 seconds for you to select a file and begin the transfer. At the end of 60 seconds, the controller will display `Load Cancelled` and the prompt. You can then begin another transfer.

13. In TeraTerm, send the new `SBOOT_x.y.z.bin` file using the X-Modem protocol. Click *File, Transfer*, *X-Modem*, then *Send...* The *TeraTerm: XMODEM Send* dialog is displayed. Select the new `SBOOT_x.y.z.bin` file from the list of displayed files. Click on the *Open* button to send the file. A dialog is displayed showing the transfer status. When TeraTerm is done sending the file, the dialog disappears.

14. On the display, the following message is displayed:

```
CCCCCDone.
```

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

If you see `Done`, the new file has been successfully loaded into the flash. Go to step 5.

If the *Tera Term: Send File* dialog closes and you still see just:

```
Transfer the file to flash using XModem…
CCCCC
```

wait for the controller's transfer timer to expire. (*Tip:* don't be impatient and press reset. If you do, you will need to perform the Controller Recovery steps starting on page 36.) You will then see:

```
Transfer the file to flash using XModem…
CCCCC
Load Cancelled.
```

Go back to step 2 and start the transfer again. It is not necessary to erase the file again if the load does not complete. Just start the transfer again. Be sure that you're clicking *File, Transfer, X-Modem, Send* to send the file. You must **not** be using the Tera Term *File, Send File…* command; this command will not work.

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.

---

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

```
D<enter>
```

16. Press the RESET button on the controller so that you will be using the new version of SBOOT.

Note: The new version of SBOOT uses a new menu style for Erase, Load and Boot of files. The next section will use these new commands.

---

17. Continue updates of your controller on page 11. Come back to page 36 to finish up.

Finishing Up When Updating From a Beta Release or Release V1.0

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.

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

---

5. Hold the INIT button and plug the power into your 7330. It will start by playing the speech message "SCOM 7330 Version *version number*" to Port 1 and send text to the console port. The front panel will light the PTT LED for Port 1 while the speech message is played. If the front panel LEDs are lighting left-to-right as before, or the SBOOT menu has been displayed to the console port, 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-Start* erased them.

7. The update is complete!

Controller Recovery Procedure

If you have a problem while loading the firmware and this problem causes the controller to be inoperative, the following procedure can be used to again gain access to the SBOOT menu via the serial port to update any missing or corrupted files.

This procedure will use the latest version of the SBOOT firmware included with the release package. The recovery file is in a different format (the name of the file ends in `.S19`) that is compatible with the controller's hidden boot rom loader, firmware that you never see when everything operates perfectly.

Follow this procedure:

1. Set the baud rate of your terminal emulator to 57,600.

2. Unplug the power to the controller, remove the cover, install jumpers at AUX1 and AUX2 (see the board layout in the User Manual on page B-18 for the location of the jumpers), then apply power to the controller.

3. Press reset. You will see the BootROM Loader message:

    ```
    S-COM 7330 V1.2.0
    >
    ```

4. Type `L<enter>`. The screen looks like this:

    ```
    S-COM 7330 V1.2.0
    >L
    ```

5. In your terminal program, select the option to **send a text file**. This is **not** an X-Modem transfer. Use the same option you use to send a file of programming commands to the controller. (In TeraTerm, select File, then Send File…) Use the recovery version of SBOOT listed in the table on page 1 of this document. The name looks like this:

    ```
    SBOOT_1.8.1.S19
    ```

    You will see lots of dots on the screen followed by a prompt, like this:

    ```
    S-COM 7330 V1.2.0
    >L
    ......................................
    >
    ```

6. Type `e8000<enter>`:

```
>e8000
```

On your console you will see the familiar SBOOT menu:

```
SCOM 7330 SBOOT V1.4.0

7330 Controller Storage Management

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

 S  - Save Repeater Configuration
 R  - Restore Repeater Configuration

 E  - Erase Files
 L  - Load File from a PC to Flash
 U  - Upload File from Flash to a 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

Time: 091708-091211-3
Battery OK.
SBOOT>
```

7. **You aren't done yet!** You have loaded a temporary copy of SBOOT that will let you correct the problem with the files loaded in the flash memory. You must complete all of the following steps to recover your controller.

8. Type `D<enter>` to display the directory of files loaded in the flash memory of the controller. Compare the list of files currently in the flash memory to the list of expected files and versions listed on page 1. You are usually looking for a missing file.

9. Proceed following the Firmware Update Instructions starting on page 7 of this document to erase then load the SBOOT firmware into the flash memory.

10. Remove power from the controller, remove and store the AUX1 jumper but leave the AUX2 jumper in place. Apply power to the controller. You will again see the SBOOT menu.

11. Now install the other files. Check the versions of DIAG, 7330 (in location SCOM_A) and the Speech Library. Update those as well, if required or if you suspect they are corrupted.

12. Now boot the 7330 firmware. Type `B<enter>`. Select option 3 if you need to erase your previous configuration (this is a normal step for a firmware upgrade). Otherwise, select option 2. The 7330 app should begin to run and display text like this on the console:

```
S-COM 7330 Repeater V3.4.1

Internal Battery: OK
Started at 07/15/14 19:06:40
7330>
```

It will also say `Cold Reset` if you selected boot option 3.

13. Remove power from the controller, remove and store the AUX2 jumper, then apply power to the controller. The controller should now operate properly.

14. Recovery of the controller is complete.

Notes: