

I. Introduction



Make sure to operate the Comtech EF Data CRS-500 1:N Redundant System with its latest available firmware.

The CRS-500 1:N Redundancy System is factory-shipped with the latest version of operating firmware. If you need to update the firmware, you can apply the update to the system without having to remove it from operation. You may directly acquire the download from Comtech EF Data's Web site (www.comtechedata.com) or receive the archive file by e-mail from Comtech EF Data Product Support.

The CRS-500 Firmware Update process is as follows:

1. Download the modem-specific firmware update archive file to a user-supplied PC. The User PC must be Microsoft Windows® compatible.
2. Connect the User PC serial and Ethernet ports to the CRS-500 1:N Redundancy System.
3. Use the CRS-500 HTTP Interface to automatically upload the extracted firmware files from the User PC to the system's standby firmware image.
4. Use the CSU Front Panel or the CRS-500 HTTP Interface to configure the system to operate using the updated firmware image.

II. About Firmware Numbers, File Versions, and Formats

Comtech EF Data's Web site catalogues its firmware update files by product type (e.g., modem, converter, etc.) and specific model/optional configuration. The CRS-500 files are provided under "Home | Support | Software Downloads | Flash & Software Update Files | CRS-500 Accessories | CRS-500."

Note that firmware is modem-specific. The firmware download hyperlink appears either as:

- **F0000389X_V###** (for the CDM-625 or CDM-625A);
- **F0000476X_V###** (for the CDM-750 or CDM-760).

Typical for either, 'X' is the revision letter, and '###' represents the firmware version number – e.g., V123 = Version 1.2.3.

Comtech EF Data provides its archive download files in two compressed formats as *.exe (self-extracting) and *.zip (compressed):

- The self-extracting *.exe file does not require use of a third-party utility program.
- Some firewalls do not allow the download of self-extracting *.exe files. You must instead download the *.zip file, and extract the firmware files from the download with a user-supplied third-party file archiver and compression utility program such as PKZIP for Windows, WinZip, ZipCentral, etc. (PKZIP for DOS is not supported due to file naming conventions). Comtech EF Data does not provide this utility program.

For detailed information on handling archived files, read your archive utility program's Help documentation.

III. Get Started: Prepare for the Firmware Download

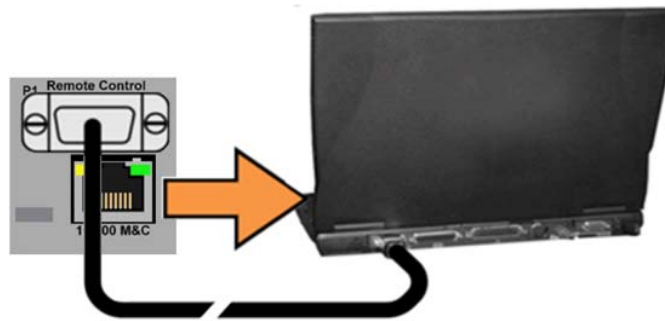
You will need:

- A Microsoft Windows-based PC, equipped with available serial and Ethernet ports.
- A 9-pin serial cable and an RJ-45 CAT5 Ethernet cable to connect the User PC to the system.
- A terminal emulator program (e.g., Tera Term or HyperTerminal).
- A compatible Web browser (e.g., Internet Explorer).

Do these steps:

1. Connect the User PC to the system:

- Connect the 9-pin serial cable from the CSU's CRS-530 System Controller Module 'P1 | Remote Control' port to a serial port on the user PC.



- Connect the CAT5 Ethernet cable from the CRS-500 system to an Ethernet port on the User PC via a hub or a switch, or direct connection. Note that the location for this M&C connection depends both on the deployed modem model and the mode of Ethernet in use. See Chapter 5. CABLES AND CONNECTIONS in your CRS-500 manual for details.

2. Connect the User PC to the system. On the User PC, open the terminal emulator program, and then configure the program's serial port communication and terminal display operation:

- Baud Rate = 38400 bps
- Data Bits = 8
- Stop bits = 1
- Parity = NO
- Local Echo = ON
- Port Flow Control = NONE
- Display New Line Rx/Tx = CR



Read your terminal emulator program user guide or HELP feature for operating and configuration instructions.

3. **Apply power to the CRS-500 (at the CSU rear panel).** Be sure to power on all modems installed in your CRS-500 1:N Redundancy System. Apply power to the CRS-500 system components through the CSU rear panel power modules. The CSU will be equipped with either a pair of standard CRS-541 AC Modules, or the optional CRS-551 DC Modules.



(TOP) CSU Rear Panel with Standard CRS-541 AC Modules
 (BOTTOM) CSU Rear Panel with Optional CRS-551 DC Modules

4. **Get the CRS-500 Management IP Address and Firmware Information.** You may use Front Panel Operation or the Serial Remote Interface (and the CRS-500 HTTP Interface, if the Management IP Address is already known) for these tasks:

- A. **Use CSU Front Panel Operation to find the Management IP Address.** (You will be unable to access the CRS-500 HTTP Interface without this information.) You may view the assigned Management IP Address on the `SELECT:Config→IP→Mgt-IP` screen.

```
Management IP Address:
000.000.000.000
```

- B. **Use CSU Front Panel Operation to find the Firmware Information.** You may view the CRS-500 running M&C version at the top level screen. Press the CLEAR key several times to view this information. The detailed firmware information can be found within the `SELECT:Util→Firmware→Info→Bulk1` or `Bulk2` nested submenus.

```
Comtech CRS-500 Switch
for CDM-XXX V#.#.#
```

```
Bulk1: MM/DD/YY
FW-0000389 #.#.#
```

When done, press **ENTER** or **CLEAR** to return to the previous menu.

C. **Use the CRS-500 Serial Interface to find the Firmware Information.** Use your terminal emulator to execute remote queries with the CRS-500. The “SWR” or “FRW” remote queries are available to obtain condensed or detailed firmware information:

- **Condensed** – Use “SWR” to query the firmware version number):

EXAMPLE: <0/SWR?{CR}
>0/SWR=1.2.6{CR}{LF}

- **Detailed** – Use “FRW” to query the firmware information in the form FRW?X where X=1 (Bulk1/Image#1), 2 (Bulk2/Image#2), or 3 (bootrom)).

EXAMPLE: <0/FRW?1{CR}
>0/FRW?1=F0000389X #.#.# MM/DD/YY{CR}{LF}

D. **Use the CRS-500 HTTP Interface to find the Firmware Information.** Do these steps:

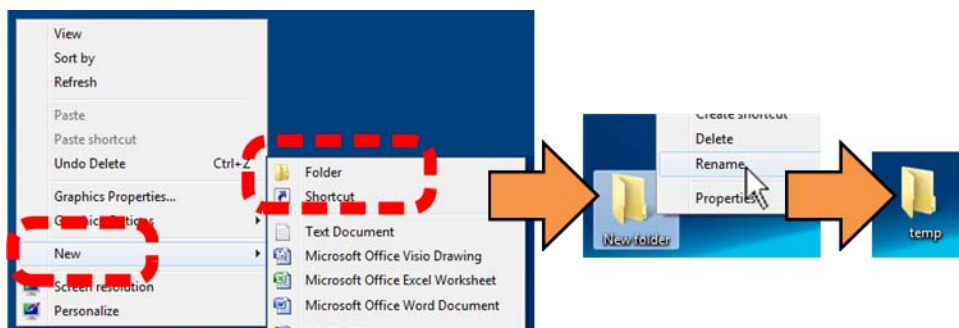
- I. The ‘Bulk Information’ section of the ‘Utility | Info’ page provides the firmware information details as **Bootrom**, **Bulk 1**, and **Bulk 2**, as shown in this example:

File #	Active	Description
Bootrom	Yes	FW-0000322(1.2.4) - 17:18:35 8/8/13
Bulk 1		FW-0000389(1.2.4) - 17:18:35 8/8/13
Bulk 2		FW-0000389(1.2.3) - 23:13:8 8/5/13

- II. Write down your firmware information for further reference or to provide to Comtech EF Data Product Support.

5. **Make a Temporary Folder (Subdirectory) on the User PC.** The temporary folder is where you store the firmware archive download. There are several ways you can make a temporary folder on a Windows PC:

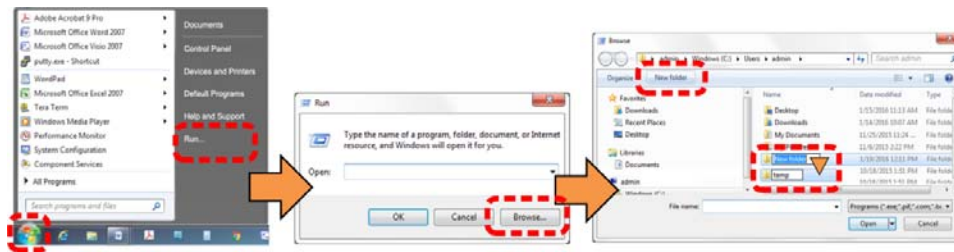
A. **Use Windows Desktop to Make a Folder.**



Do these steps:

- I. Right-click anywhere on the desktop to open the popup submenu.
- II. Select New > Folder to make the new, temporary folder on the desktop.
- III. Right-click on the new folder and then select Rename from the popup submenu. Rename this folder to “temp” or some other convenient, unused name.

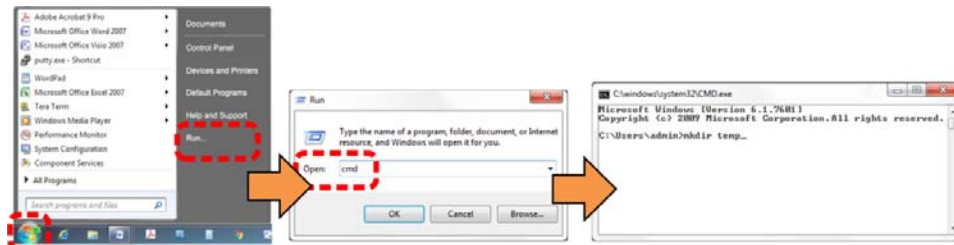
B. Use the Run and Browse Windows to make a folder.



Select **Start** on the Windows taskbar. Do these steps:

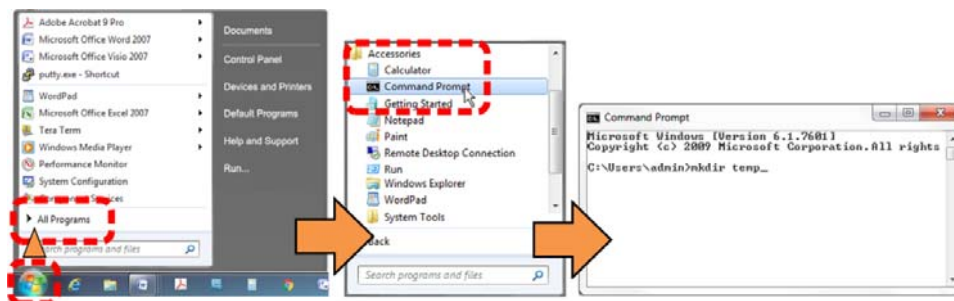
- I. Click **Run...** to open the **Run** window.
- II. Click **Browse...** to open the **Browse** window.
- III. Click **New Folder**. This can be an icon or a text label, depending on the Windows OS version.
- IV. Right-click the **New Folder** folder name, and then **Rename** this folder to “temp” or some other convenient, unused name.

C. Use Windows Command-line or Command Prompt to make a folder.



Select **Start** on the Windows taskbar. Do these steps:

- I. Click **Run...** to open the **Run** window (or, depending on Windows OS version prior to Windows 95, click the **MS-DOS Prompt** icon from the Main Menu).
- II. Open a Command-line window:
 - For Windows 95 or Windows 98 – type “command”.
 - For any Windows OS versions later than Windows 98 – type “cmd” or “command”.
 - Alternately, from **Start**, select the **All Programs > Accessories** popup submenu, and then select **Command Prompt**:



- III. From the `c:\>` prompt, type either “`mkdir temp`” or “`md temp`” (both “`mkdir`” and “`md`” mean “make directory”). Press **Enter**.

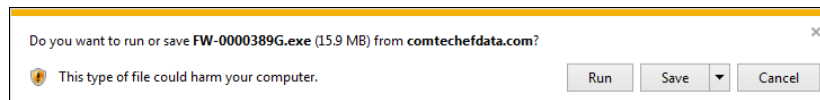
IV. Download and Extract the Firmware Update Files



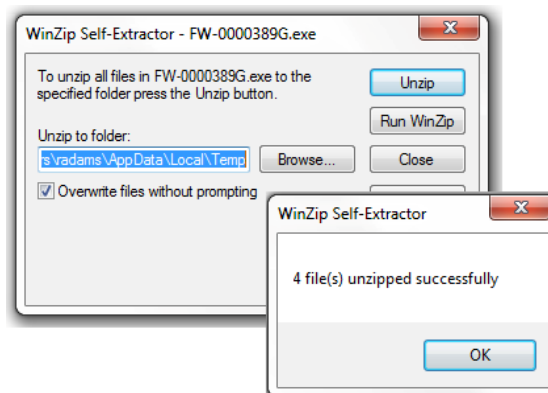
The example figures in this section are provided for reference only. Your firmware information will be different.

Do these steps:

1. Go online to www.comtechedata.com.
 - A. On the Main page – Under **Support Information** or the **Support** tab, select the **Software Downloads** hyperlink.
 - B. On the **Software Downloads** page – Click **Download Flash and Software Update Files**.
 - C. On the **Flash Updates Index** page – Select the **Modem Accessories** hyperlink.
 - D. On the **Modem Accessories** product page – Select the modem-specific **CRS-500** product hyperlink.
 - E. Select the appropriate firmware archive EXE or ZIP file download hyperlink.
 - F. Once you select the EXE or ZIP hyperlink, the **File Download** dialogue opens on your browser and prompts an action. You may otherwise click **[Cancel]** to quit the file download process.
 - **For EXE files:**

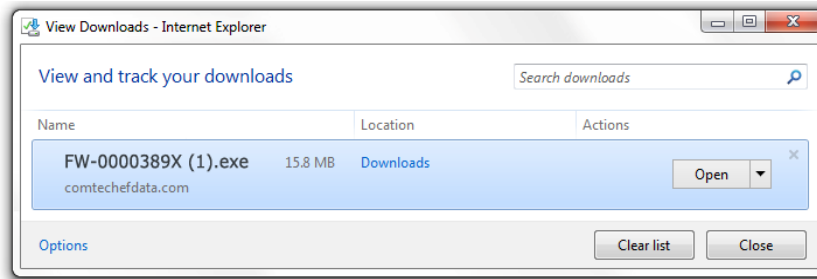


- Click **[Run]** to open the self-extractor dialogue window. Use **[Browse]** to select your destination folder. Click **[Unzip]** to extract the files. Your results display as per this example – click **[OK]** to close. Your files are now available for transfer to the CRS-500.



- Click **[Save]** to download the EXE file to your Downloads folder. Once the download is complete the dialogue prompts you to either **[Run]** the self-extracting file, or to open or view the Windows Downloads folder for further action.





- **For ZIP files:**

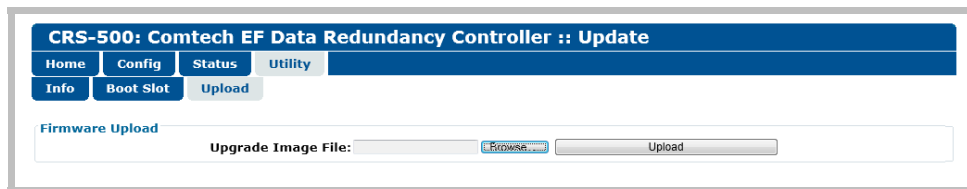


- Click [**Open**] to open the archive file. Use the WinZip features to select the files for extraction to your destination folder.
 - Click [**Save**] to download the ZIP file to your Windows Downloads folder. Once the download is complete the dialogue prompts you to either [**Open**] the archive file, or to open or view the Windows Downloads folder for further action.
- If not already done with **File Download > Open**, you must extract, at a minimum, these files (filenames are subject to change):
 - **FW-0000389X-#.#.#.bin** (bulk image file for the CDM-625 or CDM-625A)
–OR–
FW-0000476X.bin (bulk image file for the CDM-750 or CDM-760)
 - **CRS-500 Switch Controller for CDM-XXX #.#.# Release Notes.pdf** (modem-specific firmware release notes).
 - Confirm availability of the firmware files in the temporary folder. There are several ways you can view the contents of the temporary folder on a Windows-based PC:
 - Use Windows Desktop to view folder contents.** Do these steps:
 - Double-left-click the Windows Explorer icon, and then double-left-click as needed to locate, and then open, the “temp” folder (directory) created earlier on the Windows Desktop.
 - Use the **Browse** window (**Start > ...Run > Browse**) to locate, and then double-click to open, the “temp” folder.
 - Use Windows Command-line or Command Prompt to view folder contents.** Do these steps:
 - Type “**cd c:\temp**” at the Windows Command-line prompt to change to the temporary folder (directory) created earlier using Command-line.
 - Type “**dir**” to list the files extracted to the temporary folder from the downloaded archive file.
 - After you confirm the firmware files are in the folder, proceed to **Section V** to upload the firmware update to the CRS-500.

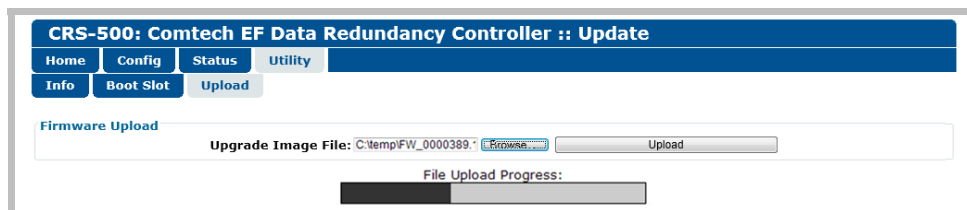
V. Upload the Bulk Firmware Files and Update the CRS-500

Do these steps:

1. **Prepare for the Automated Firmware Update.** Before you proceed with the firmware update, make sure that:
 - You connect the modem M&C Ethernet port to the User PC as described in **Section III**.
 - Your PC is running a terminal emulation program for operation of the CRS-500 Serial Interface or the CRS-500 Ethernet Telnet Interface.
 - You have noted the CRS-500 Management IP Address.
 - Your PC is running a compatible Web browser for operation of the CRS-500 HTTP Interface.
 - You download or otherwise have Comtech’s latest firmware files available on the User PC in an accessible temporary folder.
2. **Perform the Automated Firmware Update.** Do these steps:
 - A. From the CRS-500 HTTP Interface, click ‘Utility | Upload.’

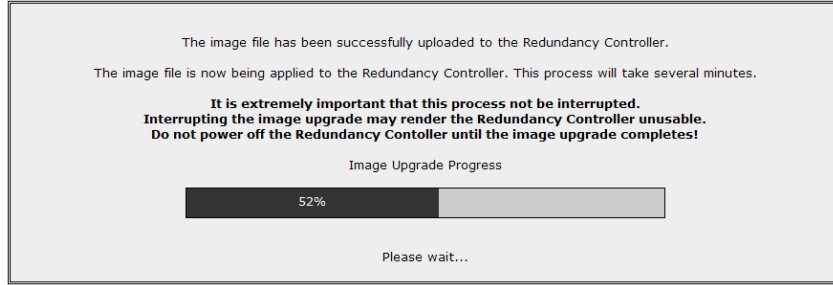


- B. To upload the firmware update file: Click [**Browse**] to locate and select the firmware file downloaded previously into the User PC’s temporary folder. Click [**Upload**] to begin the update process, and then wait while the scrolling “**File Upload Progress:**” status bar displays the upload progress:

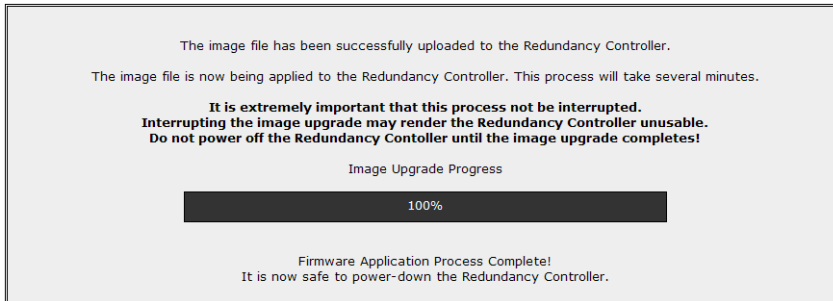


- C. Once the file uploads to CSU flash memory, the Bulk Image file *that is not currently selected as the ‘Boot From:’ image will be overwritten* (that is, if you select **Image#1** as the current boot image then, accordingly, the **Image#2** file slot is automatically chosen for replacement).

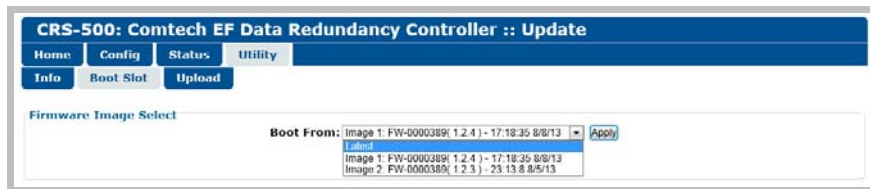
The Image Upgrade Progress status window appears and displays, by scrolling percentage of completion, the file transfer progress:



Once the transfer has completed (i.e., 100%), the “Firmware Application Process Complete!” message appears:



- D. Open the ‘**Utility | Boot Slot**’ page. Use the ‘**Boot From:**’ drop-down list to verify that the new firmware is reported in the unselected Image slot (depending on how the ‘**Boot From:**’ setting was defined prior to the firmware file upload process):



Select the desired ‘**Boot From:**’ preference. Note the following:

- **Latest** – Automatically chooses the Image containing the most recent firmware upload;
- **Image #1** – Chooses the Image loaded into Slot 1;
- **Image #2** – Chooses the Image loaded into Slot 2.

Click [**Apply**] to commit the selection to memory. From this point forward, the system will reboot using this selection, until you choose otherwise.

- E. **Reboot the system.** Open the ‘**Utility | Boot Slot**’ page, and click [**Reboot Now**] to power cycle the system:



A 5-second countdown window appears before the system reboots:



During this time you may click **[click to cancel]** to abort the process. Should you allow reboot to proceed, the following messages appear during the reboot process:



- F. If needed, update the alternate firmware image. Should you desire to update the originally-selected image slot – i.e., the slot that was in use at the time the file upgrade was applied to the slot not in use – then do these steps:
 - I. As per **Step 4**, open the **'Utility | Boot Slot'** page and use the **'Boot From:'** drop-down list to select the *newly-upgraded image* as the designated image from which to boot, and then click **[Update]**.
 - II. Reboot the system as per **Step 2(E)**. Once the reboot is complete, click **[click to continue]** to return to the **'Utility | Boot Slot'** page.
 - III. With the *newly-upgraded image* now selected and active, repeat **Steps 2(A) through (E)** to automatically upload the firmware file upgrade to the *alternate image slot*.

To verify that the PC-to-unit FTP file transfer was successful, find the current firmware information via the CSU Front Panel, Serial Interface, or the HTTP Interface (see **Section III**).

The CRS-500 is now operating with its latest firmware. The firmware update process is now complete.