

## I. Firmware Update Overview

The UT-4500 Series Up Converters and DT-4500 Series Down Converters (referred to hereafter as the “Converter”) are factory-shipped with the latest version of operating firmware. If you need to update the firmware, you can apply the update to the Converter without having to remove it from operation. You may directly acquire the download from Comtech EF Data’s web site ([www.comtechefdata.com](http://www.comtechefdata.com)), or receive the archive file by e-mail from Comtech EF Data Product Support.

### Converter Installation and Operation Manuals



Before proceeding, you should be familiar with your converter product. Read your specific installation and operation manual:

- UT-4500 Series C- and Ku-Band Up Converters Installation and Operation Manual (CEFD P/N MN/UT4500.IOM)
- UT-4579 X-Band Up Converter Installation and Operation Manual (CEFD P/N MN/UT4579.IOM)
- DT-4500 Series C- and Ku-Band Down Converters Installation and Operation Manual (CEFD P/N MN/DT4500.IOM)
- DT-4572 X-Band Down Converter Installation and Operation Manual (CEFD P/N MN/DT4572.IOM)

### Converter Firmware Update Procedure Summary

1. Download the firmware update archive file to a user-supplied PC. The PC must be Microsoft Windows® compatible.
2. Connect a user-supplied Ethernet cable from the User PC to the ‘Ethernet’ RJ-45 100BaseTX port.
3. Connect a user-supplied serial cable from the User PC to the ‘J1 | COM1’ DB-9F port.
4. Extract the firmware update files from the archive download file. You may then use Comtech’s “CReflash” utility. Otherwise, you must use the Converter Management IP Address to connect the FTP client to an FTP server, and then FTP-transfer the files from the User PC to the Converter.

### About Firmware Numbers, File Versions, and Formats



The Comtech EF Data Web site catalogues its firmware update archive files by product type (e.g., router, modem, etc.), the specific model, and optional hardware configurations. The Converter files are provided under “Home | Support | Software Downloads | Flash & Software Update Files | Converters | DT-4500 Series & UT-4500 Series Software Downloads.”

The Converter firmware download hyperlink for the Ethernet-ready, current production unit (i.e., Ver6x chassis) is **F0000202x\_V###**.

The Converter firmware download hyperlinks for older, non-Ethernet units (Ver5x and earlier

chassis) are as follows:

- Ver5x Units / 1 kHz Step Size: **F1611-1x\_v###**
- Ver5x Units / 125 kHz Step Size Units: **F1610-1x\_v###**
- Ver4x Units / 1 kHz Step Size Units: **F1604-1x\_v###**
- Ver4x Units / 125 kHz Step Size Units: **F1603-1x\_v###**

Note that 'x' is the firmware 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 – \*.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 utility program's Help documentation.

## II. Prepare for the Firmware Download

**Required User-supplied Items:** You will need a Microsoft Windows-based PC equipped with available serial and Ethernet ports, a compatible Web browser (e.g., Internet Explorer), and a terminal emulator program (e.g., Tera Term or HyperTerminal).

### Configure the Terminal Emulator Program



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

**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

## Get the Converter Management IP Address and Firmware Information

1. **On the Converter** – Apply power to the unit. Typical for either the standard AC unit or the optional DC unit, switch the power ON.
2. Use the Converter front panel to identify your default Management IP Address. You will not be able to access the Converter HTTP Interface without this information.
3. Get the firmware information using one these methods:
  - Use the Converter front panel;
  - Use the Converter HTTP (Web Server) Interface;
  - Use the Converter Serial Interface.

## Use the Converter Front Panel to Get the Management IP Address and Firmware Information

- You may view find the factory-assigned Management IP Address within the **CONFIG → REMOTE → ETHERNET → ADDRESS** menu branch:

```
IP Address/Range :  
XXX.XXX.XXX.XXX/YY
```

- You may view the current Firmware M&C version at the top-level menu of the front panel display (press the **[CLEAR]** key several times):

```
DT_45XX -X  
SW VER X.X.X SN#####
```

- You may view the detailed firmware information within the **UTILITY → FIRMWARE → INFO → IMAGE#1 or IMAGE#2 → BULK** menu branches:

```
Image#X: BULK APP FPGA
```

```
Bulk#X: FW-0000202x  
X.X.X. MM/DD/YY
```

## Use the Converter HTTP Interface to Find the Firmware Information

Do these steps:

1. Go to either of these pages to review the firmware information:
  - The 'Firmware Information' section of the 'Config | Utility' page provides the firmware details as Boot, Bulk1, and Bulk2, as shown in this example:

```
Firmware Information
Boot:
FW-0000201;1.1.1 ;01/21/11
Bulk1:
FW-0000202k;1.3.4g;03/06/15
FW-0000203J;1.3.4 ;03/02/15
FW-0000204A;1.1.2 ;03/15/12
Bulk2:
FW-0000202k;1.3.4 ;03/09/15
FW-0000203J;1.3.4 ;03/09/15
FW-0000204A;1.1.2 ;03/15/12
```

- The ‘Summary’ section of the ‘Status | Summary’ page provides the firmware details – “FW Revision”, “Active Software Image”, and “Next Reboot Image” – as shown in this example:

PARAMETER		STATUS
Circuit Identification	APPLICATION ID	MESSAGE
Serial Number	012345670	
Model Number	DT_4503C	
FW Revision	1.3.4	
Active Software Image	BULK 2	
Next Reboot Image	BULK 2	

PARAMETER		STATUS
Summary Fault		OK
Mute		OFF
RF Frequency	3625.000 MHz	
Attenuation	20.00	
Online Status		ONLINE
Number Unread Faults	000	

2. Write down your firmware information for further reference or to provide to Comtech EF Data Product support.

## Use the Converter Serial Interface to Find the Firmware Information

Use your terminal emulator program to execute the “FRM” remote query to find the firmware information:

`<DEV/FRM_{cr}`

(returns the complete information of the firmwares running under Boot, Bulk1, and Bulk2 in the form FW-AAAAAAA B.B.BB DD/MM/YY, where:

- FW-AAAAAAA = the firmware part number
- B.B.BB = the firmware version number
- DD/MM/YY = the firmware release date (Day/Month/Year)

## Make a Temporary Folder (Subdirectory) on the User PC

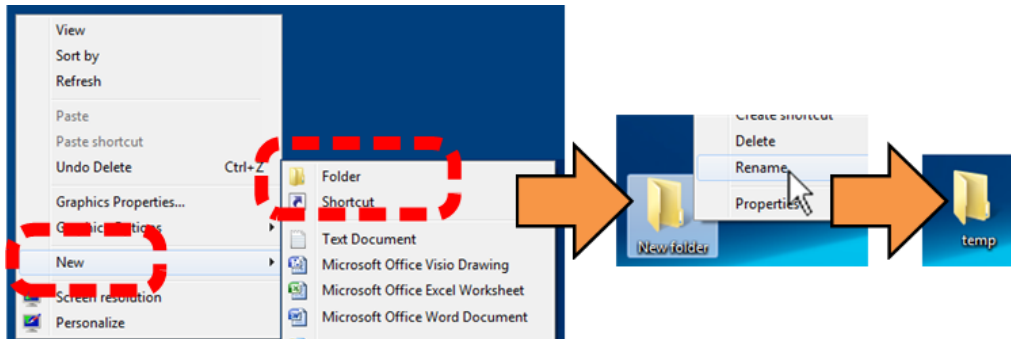
The temporary folder is where you store the firmware archive download. There are several ways you can make a temporary folder on a Windows PC:

- Use the Windows Desktop;
- Use Windows Explorer;
- Use the Run and Browse windows;
- Use Windows Command-line or the Command Prompt.



These examples specify drive letter “c:”. You can use any valid, writable drive letter. Typical for many of the tasks that follow, type the command as instructed and then press **Enter**.

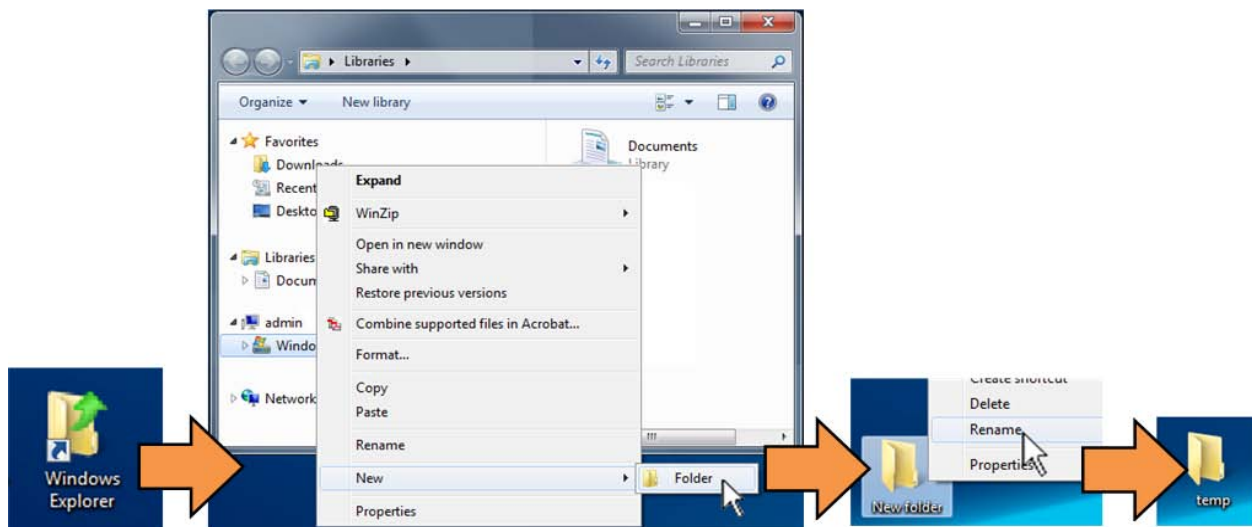
## Use Windows Desktop to Make a Folder



Do these steps:

1. Right-click anywhere on the desktop to open the popup submenu.
2. Select **New > Folder** to make the new, temporary folder on the desktop.
3. 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.

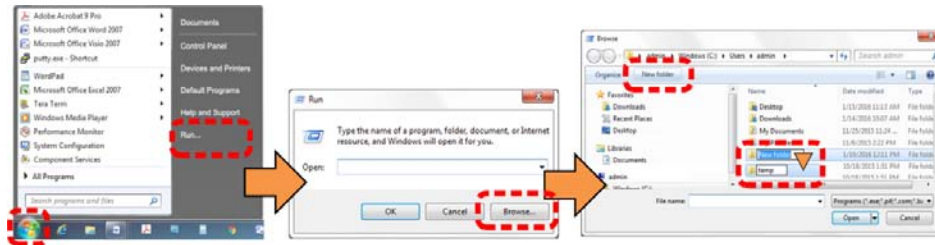
## Use Windows Explorer to Make a Folder



Do these steps:

1. Left-double-click the Windows Explorer icon on the Windows Desktop.
2. Depending in your Windows OS version: select **File > New > Folder**, or click your Folder Destination (e.g., Windows (C:)) and then **New Folder** to make the new, temporary folder in the active location.
3. Right-click the **New Folder** name, and then **Rename** this folder to “temp” or some other convenient, unused name.

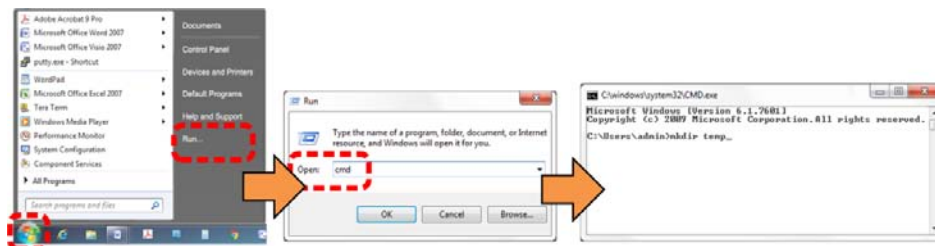
## Use the Run and Browse Windows to Make a Folder



Select Start on the Windows taskbar and then do these steps:

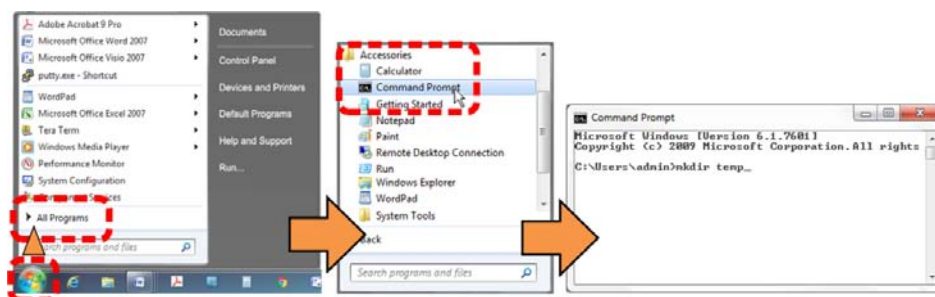
1. Click **Run...** to open the Run window.
2. Click **Browse...** to open the Browse window.
3. Click **New Folder**. This can be an icon or a text label, depending on the Windows OS version.
4. Right-click the **New Folder** name, and then **Rename** this folder to “temp” or some other convenient,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

## Use Windows Command-line or Command Prompt to Make a Folder



Select Start on the Windows taskbar and then do these steps:

1. 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).
2. 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**:



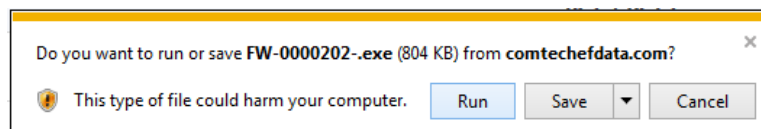
3. From the c:\> prompt, type either “**mkdir temp**” or “**md temp**” (both “**mkdir**” and “**md**” mean *make directory*), and then press **Enter**.

There will now be a “**temp**” folder created and available for placement of the firmware file download. You may download and extract the firmware files.

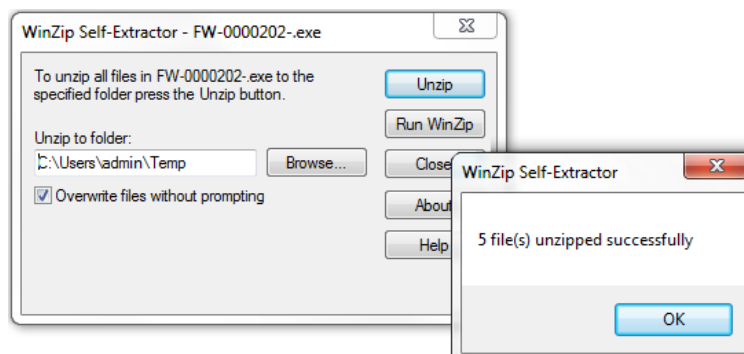
### III. Download and Extract the Firmware Update Archive Files

Do these steps:

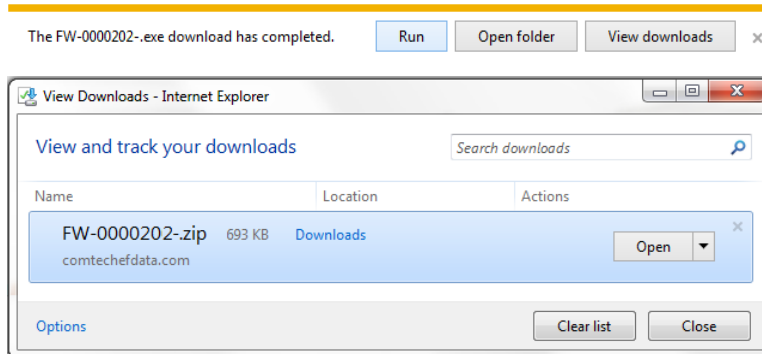
1. Go online to [www.comtechefdata.com](http://www.comtechefdata.com).
2. On the Main page – Under **Support Information** or the **Support** tab, select the **Software Downloads** hyperlink.
3. On the Software Downloads page – Click **Download Flash and Software Update Files**.
4. On the Flash Updates Index page – Select the **(Select a Product Line) Converters** hyperlink.
5. On the Converters product page – Select your converter product hyperlink.
6. Select the appropriate firmware archive EXE or ZIP file download hyperlink.
7. 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. Note the following:
  - 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 Converter.




- 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.
8. If not already done with **File Download > Open**, you must extract, at a minimum, these files (filenames are subject to change):
- FW-0000202X\_45xxA\_#.#.#.bin – The Firmware Bulk image file
  - ReleaseNotes\_45xxA.v#.#.#.pdf – The Firmware Release Notes PDF file
  - CReflash.exe –The Firmware Update Utility program
-  WHERE: 'X' is the firmware revision letter, and '#.#.#' is the firmware version (e.g., FW Ver. 1.2.3)
9. 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 the Windows Desktop to view the folder contents;
  - Use Windows Command-line or Command Prompt to view the folder contents.

## Use Windows Desktop to View Folder Contents

From the Windows Desktop, do these steps:

1. 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.
2. Use the Browse window (Start > ...Run > Browse) to locate, and then double-click to open, the "temp" folder.

## Use Windows Command-line to View Folder Contents

From Windows Command-line or the Command Prompt, do these steps:



1. Type “cd c:\temp” at the Windows Command-line prompt to change to the temporary folder (directory) created earlier using Command-line.
2. Type “dir” to list the files extracted to the temporary folder from the downloaded archive file.

**After you confirm the availability of the firmware files, you may upload the firmware update to the Converter.**

## IV. Upload the Firmware Files and Update the Converter Unit Firmware

### Important Considerations

Before you proceed with the firmware update, make sure that:

- You connect the Converter ‘Ethernet’ port to a Windows-based PC Ethernet port with a CAT5e Ethernet cable.
- Your PC is running a terminal emulation program for operation of the Converter Telnet or serial interfaces.
- You have noted your Converter Management IP Address.
- Your PC is running a compatible Web browser for operation of the Converter HTTP Interface.
- You download or otherwise have Comtech’s latest firmware files and the “CReflash” utility available on the User PC in an accessible temporary folder.

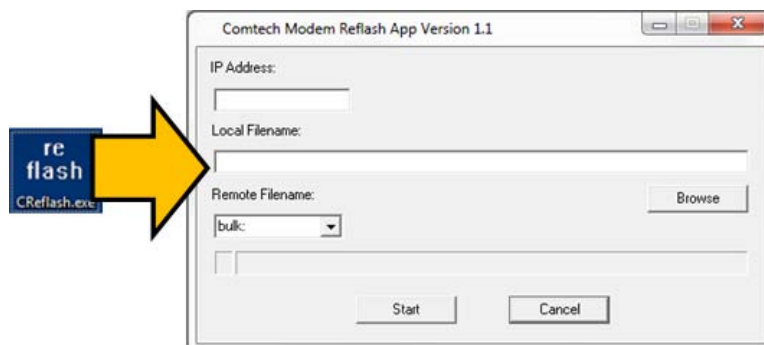
### Steps to “CReflash” Upload the Firmware Files



The “CReflash” utility is provided with the firmware download. Ver5x and earlier chassis units (i.e., non-Ethernet units) must use this procedure.

Do these steps:

1. From the temporary folder – Locate, and then double-click, the “CReflash” filename or icon. The CReflash utility opens:



2. **Enter** your upload parameters information into CReflash:
  - a. Left-click in the “IP Address:” text box, and enter the default Management IP Address.
  - b. Left-click in the “Local Filename:” text box. Then, click [**Browse**] and navigate to the temporary folder created earlier. Click on the firmware “bin” filename, and then click [**Open**]. The filename will appear in the “Local Filename:” text box.

- c. Make sure the drop-down list remains set to “bulk:”.
  - d. Click [**Start**] to begin the upload process. If the information was correctly entered into CReflash, the utility displays an animated progress bar at the bottom of the window, along with a series of messages:
    - “Opening FTP”
    - “Sending data file to modem:”
    - “Writing FLASH: # of #”
    - “Success!”
3. When done, click [**Cancel**] to exit CReflash.

## Steps to FTP Upload the Firmware Files



- 1) Typical for all steps: “xxx.xxx.xxx.xxx” represents the assigned unit Management IP Address.
- 2) Type all commands without quotes, and press **Enter** to execute.
1. To proceed, you should already have noted the Management IP Address for the Converter as instructed previously.
2. Use Windows Command-line to send a ping command. To ping the unit, type “ping xxx.xxx.xxx.xxx” at the Windows Command-line prompt. The response should confirm whether the unit is connected and communicating correctly with the User PC.
3. Use Windows Command-line to transfer the files from the User PC to the Converter via FTP:
  - a. Type “ftp xxx.xxx.xxx.xxx” to open the FTP session.
  - b. Type “bin” to set the binary transfer mode.
  - c. Type “prompt”.
  - d. Type “hash”.
  - e. To begin the file transfer, type “put FW-0000202X.bin bulk:”



The destination “bulk:” must be all lower-case.

- Press **Enter**. The unit reports the update progress (e.g., first “Programming App Flash ... Please wait.” and then “Programming main FPGA ... Please wait.”)
- f. Wait for the file transfer to end.
  - g. Type “bye” to close the FTP session.
  - h. Close the Windows Command-line window.
4. To verify that the PC-to-unit FTP file transfer was successful, find the current firmware information via the front panel or the HTTP or Serial Interface.

## Steps to Complete the Firmware Update Procedure

Use the Converter Front Panel or the HTTP Interface to select the new firmware image. You must then reboot the unit for the update to take effect.

## Use the Front Panel to Select the Boot Image

Do these steps from the Converter Front Panel:

1. Go to the **UTILITY** → **FIRMWARE** → **SELECT** menu branch.

```
Current Active Image: #2
Next Reboot Image: #1 #2
```

2. On the bottom line, use the ◀ ▶ arrow keys to change to the other image.



You must be in **LOCAL MODE** to perform this task. If you are not in Local Mode (via the **CONFIG** → **REMOTE** menu branch), the unit will prompt you to take an action before continuing:

```
Remote Mode: press ENTER
For local mode, or CLEAR
```

3. You must cycle power to hard-reboot the unit.

## Use the HTTP Interface to Select the Boot Image

Do these steps from the HTTP Interface '**Config | Utility**' page:

1. Use the 'Next Reboot Image' drop-down list to select Image 1 or 2 as the preferred Current Active Firmware Image:



```
Current Active Firmware Image : 1      Next Reboot Image: 1 Submit
```

2. Click [**Submit**].
3. You must then hard-reboot or soft-reboot the Converter.

## Hard-reboot the Converter from the Rear Panel

Typical for either the standard AC unit or the optional DC unit:

1. From the unit rear panel, switch the power OFF, and then turn the power back ON.
2. Verify the new firmware version has booted; for example, check the firmware version displayed on the Converter front panel:

```
DT_45XX -X
SW VER X.X.X SN#####
```

## Soft-reboot the Converter from the HTTP Interface

Do these steps from the HTTP Interface '**Config | Utility**' page:

1. In the 'Perform Soft Reboot' section, click [**Reboot Now**]:



```
Perform Soft Reboot      Reboot Now
```

2. Wait while the Converter reboots with the Current Active Firmware Image.

