

# Software Upgrade Procedure

## Smartpack2 Controller



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# 1. Introduction

This document describes the tasks required to upgrade the software of the Smartpack2 Control System in Eltek Power Systems. The procedures allow you to perform the upgrade on site or remotely.

The procedures describe the following upgrade methods:

- SD Card (Secure Digital Card) as the preferred method, for on-site updates.
- The free version of Eltek Network Utility (ENU), as an alternative method to upgrade the Smartpack2 Master Controller only, when upgrading remotely.
- FTP (optional method) using a third-party FTP client to transfer files to the SD card, and initiate the update(s) remotely through the web browser interface.

A typical Smartpack2 based control system consists of: Smartpack2 Master Controller, Smartpack2 Basic or Basic Industrial Controller, IO Monitor, Battery Monitor, and Load Monitor.

Multiple Smartpack2 Basic Industrial Controllers may be found in more complex telecommunications and industrial power systems, in which the rectifier bays precede the distribution bays.

The following figure represents a typical control system in a large power system.

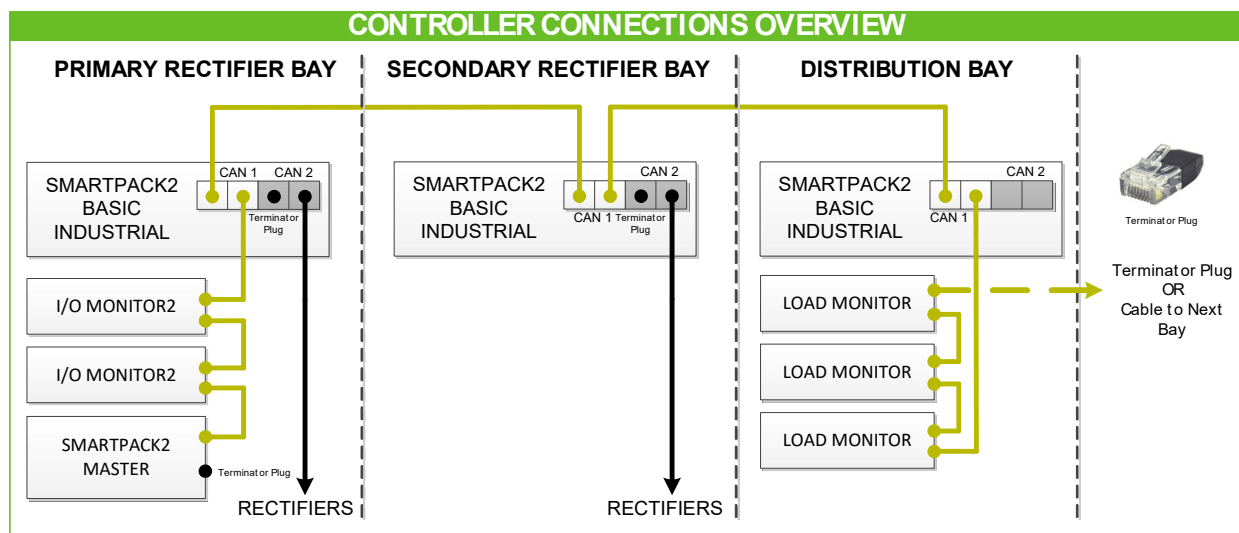


Figure 1 - Power System Control

## Important Notes:

- An SD card is required to upgrade the Smartpack2 Basic Controller, Smartpack2 Basic Industrial Controller, and other CAN nodes. The files for the SD card can be downloaded at <https://eltek.sharefile.com>. A guest user name and password are provided on the login page. An SD card was provided when the controller shipped from the factory; if the SD card is no longer installed in the controller, you can use another standard SD card.
- If using Eltek Network Utility (ENU) for a remote update, download the current version from <https://eltek.sharefile.com>. ENU is a Windows-based utility.
- The procedures in this document should not be used to downgrade the software in the controller. A software downgrade may cause incompatibility issues and or system damages; hence, Eltek does not recommend this practice, and shall not be held responsible for the loss of any data or system malfunction if the user chooses to do so.

## Warnings

- The procedures described in this document are intended to upgrade an energized, live power system. Both AC and DC voltages as well as high currents are present.
- Eltek recommends upgrading the power system during programmed maintenance hours.
- Ensure that the power system is operating in normal conditions without active alarms.
- Observe all precautions and site rules to avoid contact with any voltage and current carrying conductor to prevent electrical shock.
- In the event unforeseen circumstances occur during the upgrade, Eltek is not responsible for the loss of any data.

## Additional resources

In addition to this document, the following documentation may be needed. Be sure to obtain copies of these documents, before beginning upgrade procedures. Copies of the documents can be downloaded from <https://eltek.sharefile.com>, as described in the preceding section.

- *Navigation and Menu Tree: Smartpack2 Controller* (Document number 370017.033).
- *Configuration Guide: Eltek Controllers* (Document number 370013.063).

## 2. Backing Up Your System Configuration

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System configuration is preserved through the software update, and controllers do not need to be reconfigured unless otherwise noted. Nevertheless, should a controller fail, a backup can be used to restore the previous state of the controller. Therefore, before you start the upgrade process, create a backup of your system configuration using the following instructions.

For instructions about how to create a backup of your system configuration, follow the procedure given in the chapter on “Configuration Backup,” in the *Configuration Guide: Eltek Controllers*, Doc. No. 370013.063.

**IMPORTANT NOTE:** The backup files are valid ONLY for the system and software version USED TO create THE BACKUP. Never use the backup on another system OR different software version.

### 3. Upgrade Procedure Using a Secure Digital Card

The Smartpack2 Master Controller (SP2) features a Graphical User Interface (GUI) that facilitates local navigation through the menus to upgrade the following control units:

- Smartpack2 Master Controller
- Smartpack2 Basic Controller
- Smartpack2 Basic Industrial Controller
- Fleximonitor Battery Monitor
- IO Monitor Type 1
- IO Monitor Type 2
- IO Monitor Type 3
- Load Monitor
- Mains Monitor
- Smart Node RS232\_RS485

The Smartpack2 Master Controller features an SD port for SD Card to access the media in which the upgrade files are stored from the controller front display.

The following table shows the list of files needed on the SD card.

**Table 1 - List of SP2 Controllers and CAN nodes with corresponding SW.**

Controller- Node part number	Device name	SW part number	File name
242100.500.VC	Smartpack2 Master	405006.009	SP2MAST.BIN* SP2MAST.CRY* <small>*If updating from v. 2.5.3 or earlier, use the BIN file; if updating from 2.6 or later, use the .CRY file.</small>
242100.501.VC	Smartpack2 Basic	405007.009	SP2BAS.MHX
242100.601.VC	Smartpack2 Basic Industrial	405019.009	SP2BASIN.S19
242100.603.VC	Fleximonitor	405028.009	FLEXIMON.S19
242100.300.VC (Hardware, v. 1 – 3)	Battery Monitor Type 1	402086.009	BATTMON.HEX
242100.300.VC (Hardware, v. 4+)	Battery Monitor Type 2	405033.009	BATTMON.S19



Controller- Node part number	Device name	SW part number	File name
242100.304.VC	IO Monitor Type 1	402088.009	IO_UNIT.HEX
242100.502.VC	IO Monitor Type 2	402088.009	IO_UNIT.HEX
242100.306.VC	IO Monitor Type 3	402088.009	IO_UNIT.HEX
242100.301.VC	Load Monitor	402087.009	LOADMON.HEX
242100.305.VC	Mains Monitor	402093.009	MAINSMON.HEX
242100.200.VC	Smart Node RS232_RS485	402077.009	SMARTNOD.MHX

For additional documentation about the controller, refer to the “Additional resources,” listed on page 5. Reference is made to these other documents within this procedure. If you do not have a copy of these documents handy, download them from <https://eltek.sharefile.com>.

Please be aware of the following recommendations:


- Be prepared to allow the necessary time to the upgrade process to be completed. Some units will require longer time to upgrade (for example, each Smartpack2 Basic Industrial Controller may take up to 20+ minutes). During this time, the message **PROGRAMMING** will be displayed on the screen (see Figure 7 on page 13) during the upgrade.
- Do not interrupt the upgrade process once it is initiated. Interrupting the process may cause adverse consequences to the system.
- Each controller or node is be programmed individually.

To upgrade the controller:

1. Ensure that the files you need are on the SD card (refer to Table 1 on page 8). As previously noted, the files for the SD card can be downloaded at <https://eltek.sharefile.com>.
2. At the front of the Smartpack2 Master controller, slide the lever from right to left to access the SD card port.



**Figure 2 - Inserting the SD Card**

3. Insert the SD card into the SD port.
4. Unlock the display and access the controller menu on the front of the screen. If you need further instructions on unlocking and using the controller display, refer to the document, *Navigation and Menu Tree: Smartpack2 Controller* (Document No. 370017.033). If you do not have this document handy, download it from <https://eltek.sharefile.com>.
5. Using the navigation keys on the keypad, navigate to the icon on the screen labeled **Up/Download**, and then press the **Enter** key .



**Figure 3 - Smartpack2 Master Display and Keypad**

6. Choose **Software Upgrade** (Figure 4), and press **Enter**. The controller then displays the list of all available items that can be upgraded (see Figure 5).

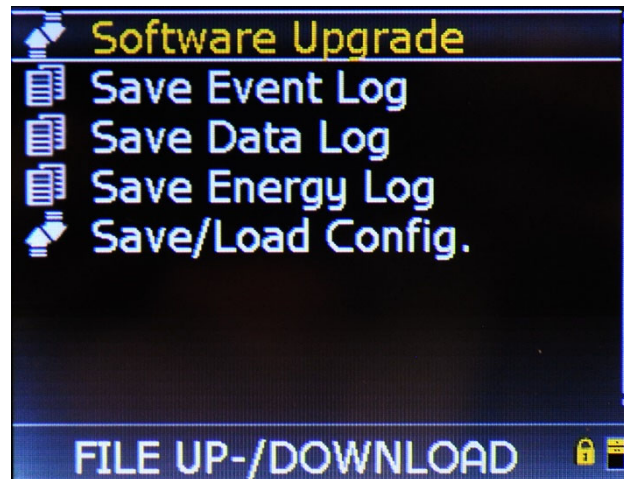


Figure 4 – Software Upgrade Menu

7. Examine the controller screen and compare the existing software versions in the far right column, with the versions on the README file associated with the files being used for the upgrade (see Step 1, page 9).

**Note:** When updating from version 2.4 or earlier, your SNMP settings will not be preserved. If you use SNMP, make a record of your SNMP settings. You can find this information by using the web interface, and navigating to **System Conf. > Device Settings > SNMP Settings**.

**Note:** For security reasons, if you are updating from Smartpack2 Master version 2.6.x; you must use the Eltek Network Utility to update the Master controller. If this list confirms that you have 2.6.x currently installed, following the instructions in Chapter 4, “Upgrade Procedure Using Eltek Network Utility (ENU)” (page 15). After updating the Master controller using ENU, return to this procedure in order to update the remaining elements from the display.

Descr.	SW Info	
SP2 Master 11	405006.009	2.5.2
SP2 Basic 1	405007.009	1.5
I/O unit 1	402088.009	4.1.2
Fleximonitor 1	405028.009	1.00

SOFTWARE UPGRADE

Figure 5 – Controller List

- On the controller screen, using the **UP** or **DOWN** arrows, choose the unit to upgrade (for example, **SP2 Master 11**, and press **Enter**. The controller will request the upgrade PIN code.

**Note:** The Master controller performs a reboot after the programming has concluded and sets the screen back to home. If you prefer to delay the reboot, perform the updates to other elements first, and update the Master controller last.

- At the prompt, to enter the PIN code, navigate with the **Arrow Up** to key to position each digit. Start with the first digit on the right and use the **Left arrow** to navigate to the next digit, and so on. The upgrade PIN code is 0709; After setting the PIN code, press the **Enter** key.

Descr.	SW Info	
SP2 Master 11	405006.009	2.5.2
SP2 Basic 1	405007.009	1.5
I/O unit 1	402088.009	4.1.2
Fleximonitor 1	405028.009	1.00

PIN-Code 0709

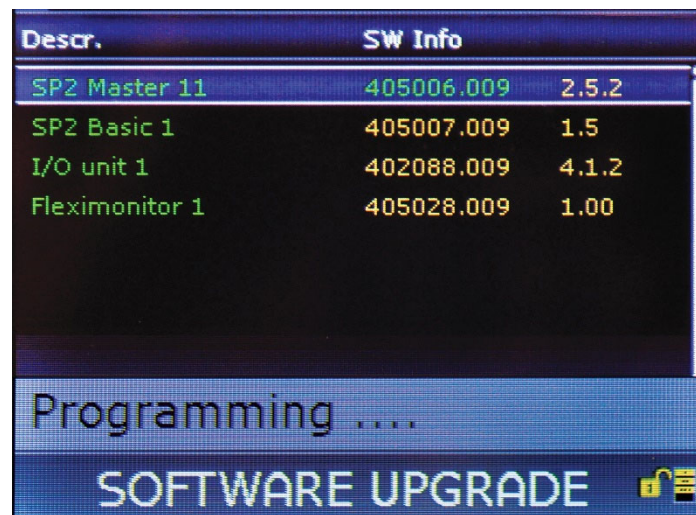
SOFTWARE UPGRADE

Figure 6 –PIN Code Entry

10. Observe that the lock pad on the lower right corner of the screen shows it in the open position. Press the **Enter** key again.

The programming process of the selected unit will begin. A message, such as **Programming** or **Reading file from SD card**, appears on the display during this process. The programming process takes about 5 minutes for a Smartpack2 Master, more or less time for other elements.

**Note:** Alarm lights on the on the controller may illuminate during the programming process.



Descr.	SW Info	
SP2 Master 11	405006.009	2.5.2
SP2 Basic 1	405007.009	1.5
I/O unit 1	402088.009	4.1.2
Fleximonitor 1	405028.009	1.00

Programming ....

SOFTWARE UPGRADE

Figure 7 – Programming Message

11. The **Programming** message will fade when the programming is completed. Software version numbers will not update until the screen is refreshed after the system reboots, or until you navigate to the main menu before returning to the **Software Upgrade** screen.

The screen shown in the preceding figure will time out and go back to the home screen after approximately 5 minutes if left unattended.

**Note:** The Master controller performs a reboot after the programming has concluded and sets the screen back to home. If you update the Master controller first, you will need to retrace steps 4 – 6 to return to the list of controllers, in order to select the next unit for upgrade, and then follow the remaining steps for each element being updated.

12. Repeat steps 8 to 11 to upgrade additional units in the system.

13. The upgrade of the system is complete when the last unit has been programmed. The new software information will be displayed on the controller screen after it automatically times out, or if it is manually set back to the home screen. Go back to the **Software Upgrade** screen (see Step 6) to refresh the controller list (see Figure 5). Confirm that the software versions on the controller list reflect the updated versions listed on the README file associated with update files (see Step 1, page 9).

This concludes the software upgrade procedure using the SD card.



## 4. Upgrade Procedure Using Eltek Network Utility (ENU)

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The Eltek Network Utility (ENU) program allows remote upgrade of the Smartpack2 Master controller only.

The free version of the ENU allows you to upgrade Smartpack2 Master controllers one at a time. The licensed version of the ENU allows the upgrade of multiple controllers simultaneously.

This chapter explains how to upgrade the Smartpack2 Master controller ONLY, and requires the latest version of the ENU installed on your computer. The correct version of the upgrade software file, “**405006.009\_UPDATE\_X.X\_APP.s19**”, must be available on the local hard drive, or on other media accessible by the computer. For secure updates, use **405006.009\_UPDATE\_2.7.3\_APP.CRY** (rev. 2.6 or later).

**Note:** These instructions assume that your controller is already on a network.

**Note:** If using a CRY file for secure update, FTPS (File Transfer Protocol Secure) must be enabled. To verify FTPS, use the web browser interface; and go to **System Conf. > Device Settings > Network Settings > TCP/IP [Security]**. Confirm that **Secure FTP Server** is enabled (checked).

**Note:** If using an s19 file for update, insecure updates must be enabled. To verify this setting, use the web browser interface; and go to **System Conf. > Device Settings > Network Settings > TCP/IP [Security]**. Confirm that **Allow insecure FW Update from ENU** is enabled (checked).

1. Open Eltek Network Utility (ENU).
1. Choose the magnifying glass icon on the upper left corner of the window. The program will query for any Smartpack2 master controllers that are connected to the Local Area Network (LAN). The main window of the ENU will populate and list any controllers connected to the same network.



Figure 8 - ENU Main Window

- From the list of controllers on the window, highlight the Smartpack2 Master Controller to upgrade.

**Note:** verify the existing software version (**SW** column) installed on the controller. If you already have the latest version, a software upgrade is not necessary.

- From the buttons along the bottom border, choose **SW upgrade**.
- On the next window choose **Open file**. You will be prompted to locate the **.S19** upgrade file, or the **.CRY** file for encrypted upgrade (ver. 2.6 or later).

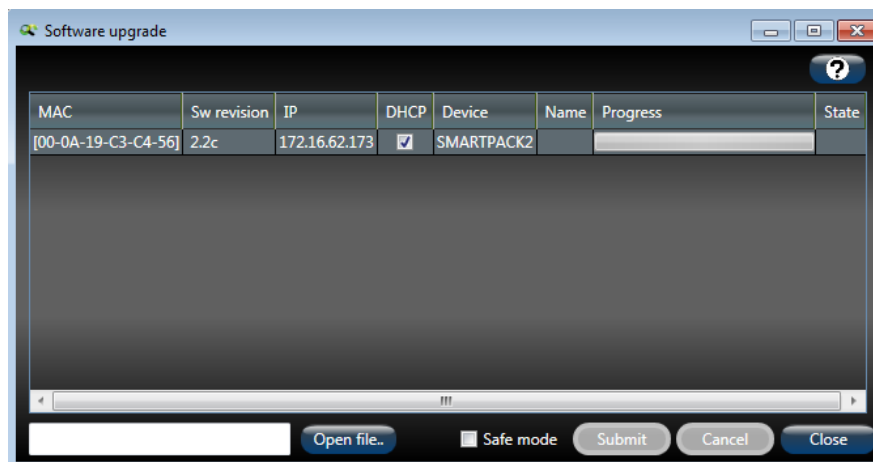


Figure 9 - ENU Open File



5. On the file browser window, highlight the correct file with the correct extension, for example **.S19** (**405006.009\_UPDATE\_2.3.APP.s19**) and choose **Open**. The window will close.

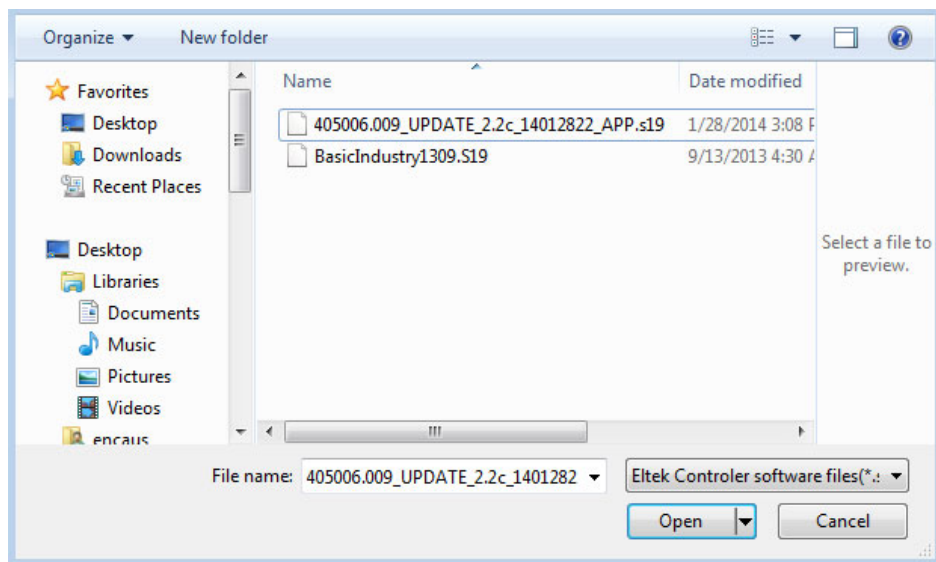


Figure 10 – Selecting the Update File

6. Returning to the **Software upgrade** window, click the **Submit** button.

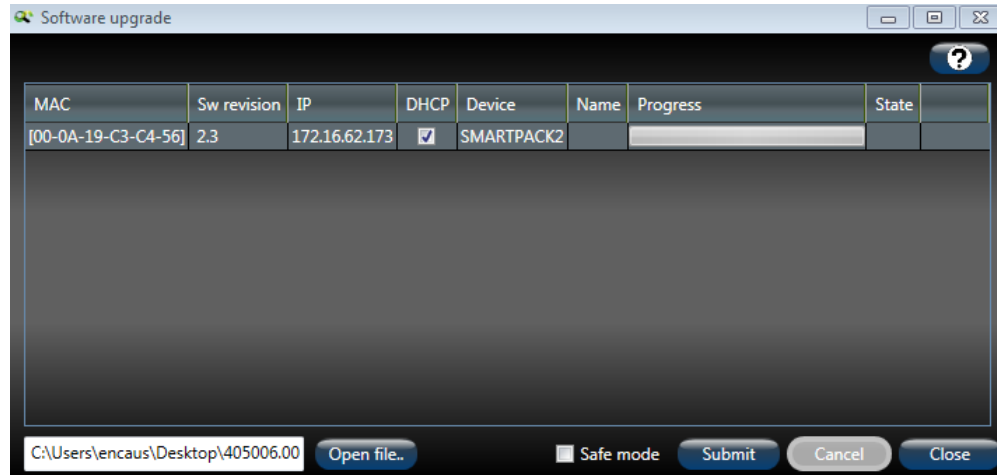
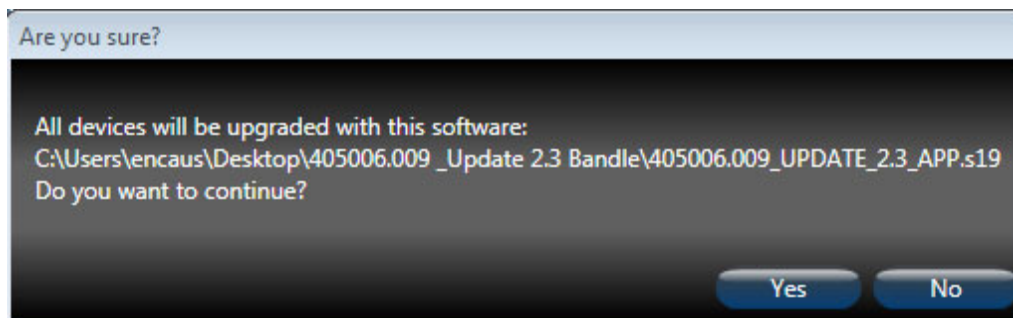


Figure 11 – ENU File Dialog Window

7. On the **Are you sure?** dialog box, click **Yes** to proceed with the upgrade. The software upload begins; you can see the status of the process on the **progress bar** that follows.



**Figure 12 - ENU Confirmation Message**

8. After the upload is complete, the controller performs an automatic reboot, and the message **Complete** will appear on the right end of the **progress bar**.
9. **Close** the window. The upgrade of Smartpack2 master controller is complete.
10. Exit the Eltek Network Utility program. You have then finished the procedure.

This concludes the upgrade of the Smartpack2 Master Controller through the ENU program.

If you are updating additional control units (Smartpack2 Basic Industrial Controller, I/O monitor, Fleximonitor), follow the procedure given in Chapter 3, “Upgrade Procedure Using a Secure Digital Card,” page 8.

## 5. Upgrade Procedure Using FTP

For FTP upgrades:

- Use FTP if you are remote (via network), and cannot use ENU to update the Master Controller; or if you are updating a Basic Controller, an Industrial Basic Controller, and/or CAN nodes.
- If a secure encrypted update is necessary, see the discussion regarding FTPS, port 990, and .CRY files, on page 15.

The update procedure includes the following tasks:

- Verify Current Software Version(s) (next section, below)
- Transfer Files to Controller Using FTP (on page 20)
- Run Software Update (on page 22)

### Verify Current Software Version(s)

Before performing any software upgrades, verify the current software version installed on each controller element in your system.

To verify existing controller software version(s):

2. Using the web browser interface, go to **Commands > Software Upgrade**.

**Note:** If you are unfamiliar with the web browser interface, see the *Configuration Guide: Eltek Controllers*, Doc. No. 370013.063.

3. On the **Software/Firmware...** page, refer to the **SW Ver #** column.

#	Type	Part#	Ver#	Serial#	SW part#	SW Ver#	Status
1	SP2 Basic 1	242100.501	2	131271147608	405007.009	1.5	✓
2	SP2 Master 1	242100.500	1.2	110871171685	405006.009	2.5.2	✓
3	Fleximonitor 1	242100.603	1.1	143371045993	405028.009	1.00	✓
4	I/O unit 1	242100.502	1.4	130571176636	402088.009	4.1.2	✓

ID	Type	SW part #	SW Version
Selected Unit :			

Figure 13 – Verifying Current Software Versions

4. Compare the software versions for your controllers with the current versions listed in the **README.txt** file included with the latest software update files.

**Note:** The **README.txt** file, as well as the software update files, can be downloaded from the Controller section of the documents at **eltek.sharefile.com**.

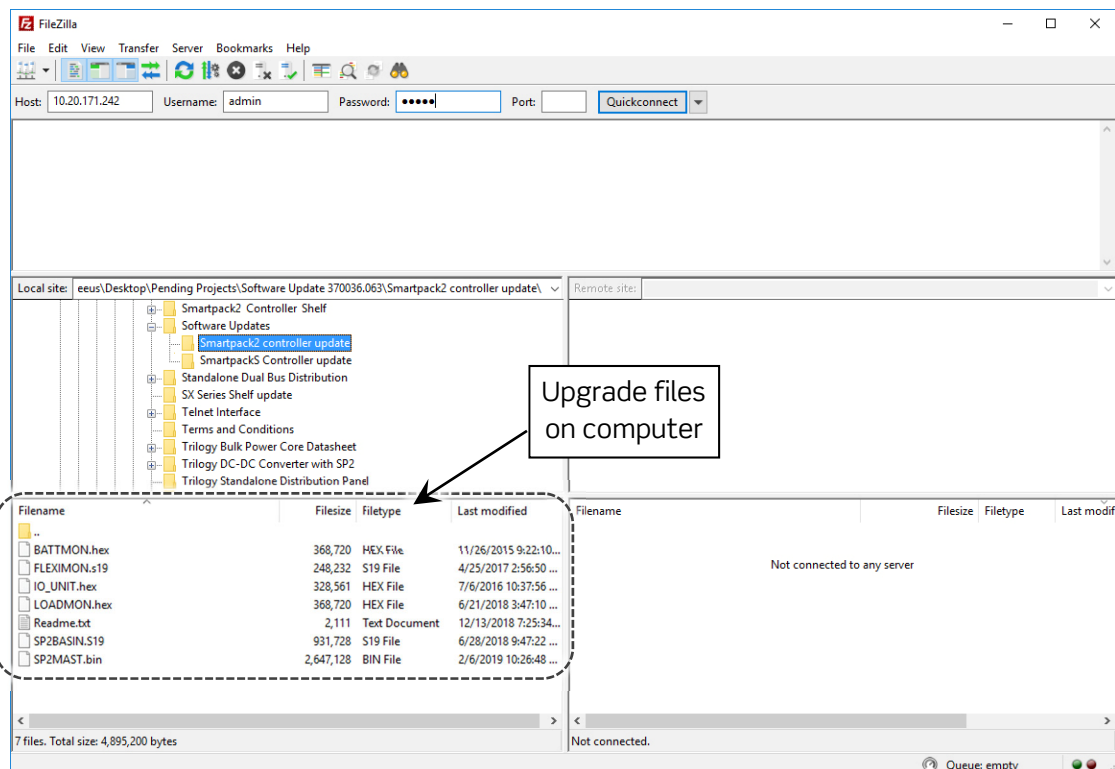
5. Copy any necessary software update files on your computer, so that you can transfer them remotely to the controller using FTP. For the correlation between the various controllers and the filenames of the updates, see Table 1 on page 8.

## Transfer Files to Controller Using FTP

In order to upgrade using FTP, you must have an FTP client application installed on your computer. The following examples use **Filezilla**, but other applications can be used to transfer FTP files.

To transfer the upgrade files using FTP:

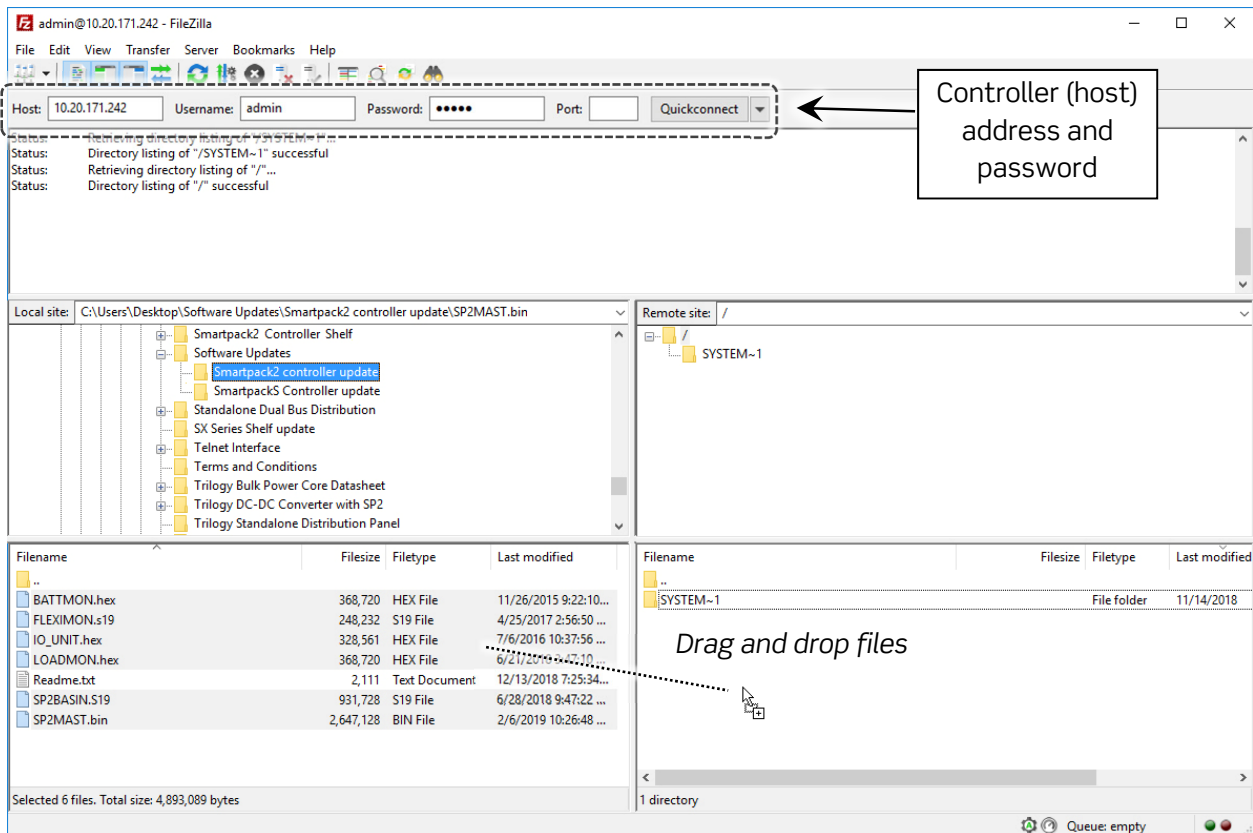
1. Launch **Filezilla**, or other FTP application.
2. Locate the directory on your computer where the upgrade files reside. (These are the files that you identified in the previous task (Step 5, above).



**Figure 14 – Launching Filezilla**

3. Enter the **Host** address, **Username**, and **Password** for the **Master Controller (Host)** for your system, and log in using FTP.
4. Choose the file(s) on your computer to be transferred to the controller, then drag and drop them (or right-click and choose **Upload**), to copy them to the controller.

**Note:** If your connection is slow or unstable, it may work best to transfer the files one at a time, and copy the master controller file (**SP2MAST.bin**) last.



**Figure 15 – Copying Upgrade Files**

5. Verify that all necessary files have been copied successfully, before moving to the next task.

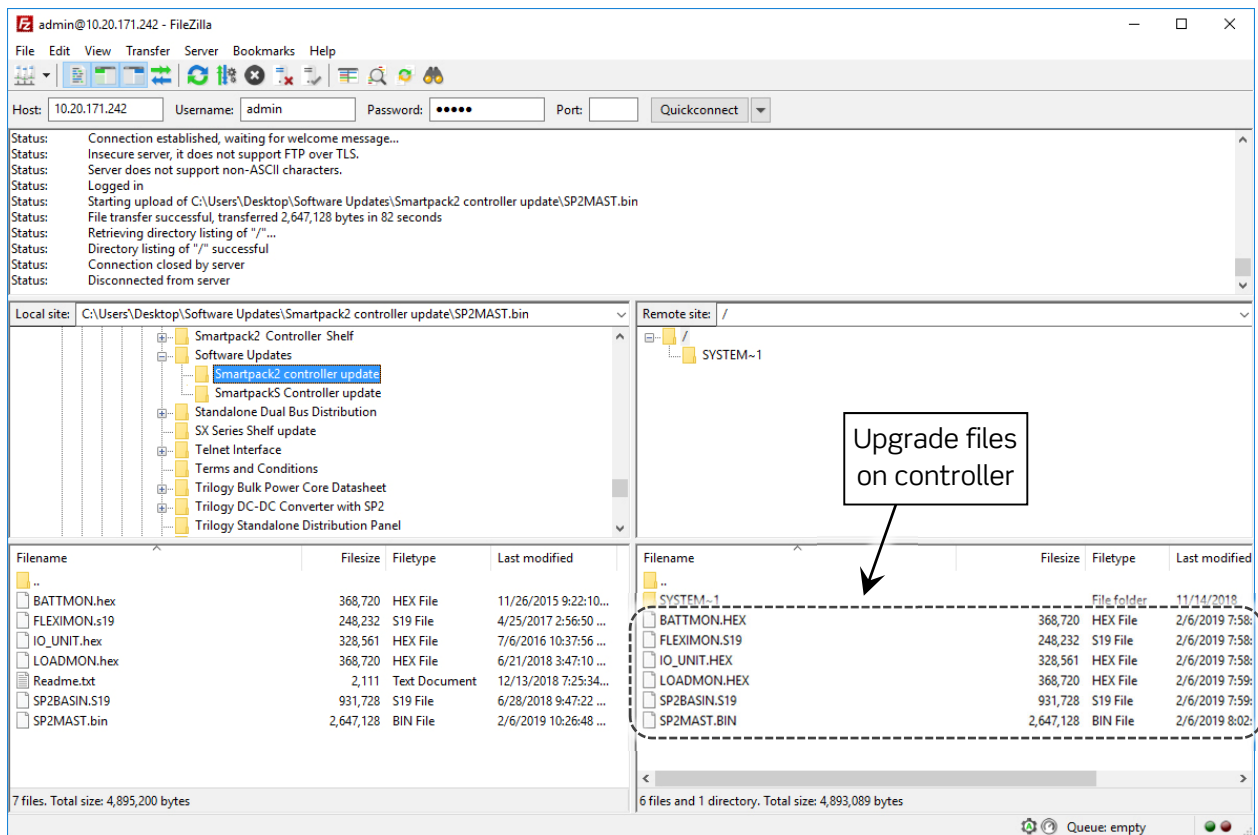


Figure 16 – Transfer Complete

## Run Software Update

After all software files have been transferred via FTP to the controller, as described in the previous section, return to the web browser interface, in order to run software updates.

To run software updates:

1. Using the web browser interface, go to **Commands > Software Upgrade**.
6. On the **Software/Firmware...** page, click the controller you want to upgrade. This selection will reveal additional details about the unit.

**Note:** You can upgrade the controllers in any sequence you prefer. Nevertheless, when the Smartpack2 Master controller is upgraded, it will reboot the system. For that reason, you may prefer to upgrade all the other controllers first, and upgrade the Smartpack2 Master controller last.

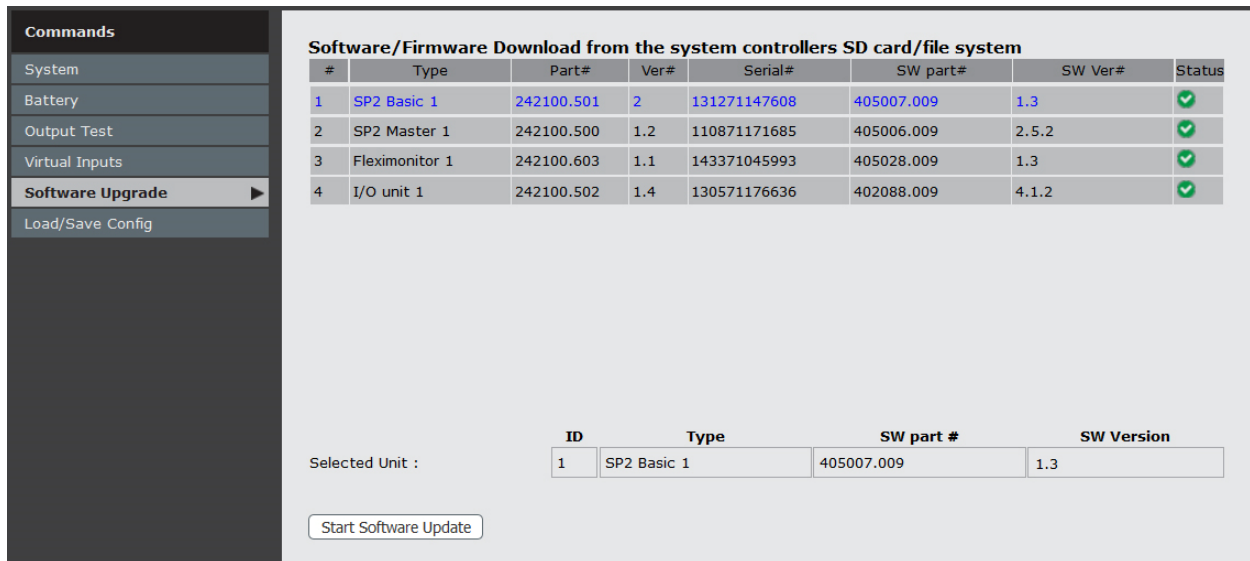


Figure 17 - Software Update Selection

7. Click the **Start Software Update** button, to begin the upgrade of that controller unit. You will see an alert saying **The selected unit will be programmed!**
8. On the **Message!** alert, click **OK** to continue the update.

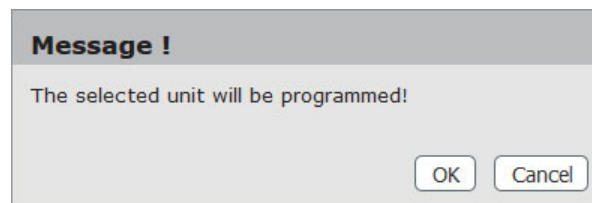


Figure 18 - Software Update Message

A progress bar appears, allowing you to monitor the progress of the update; it will be followed by an alert, notifying you when the upgrade for the controller is complete.

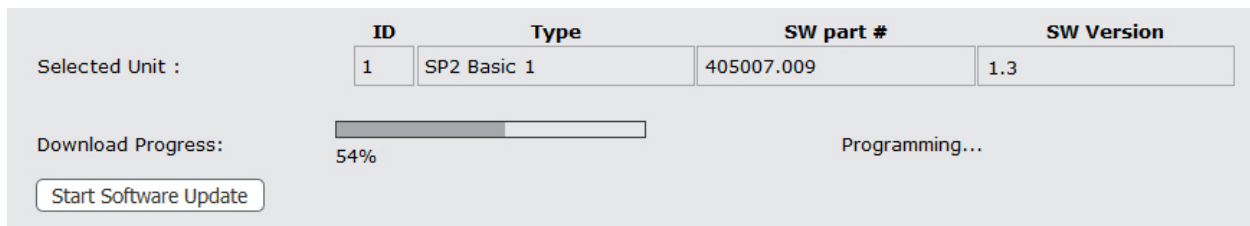
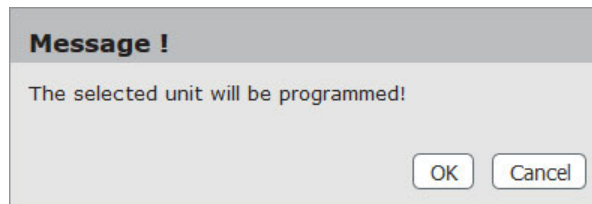


Figure 19 - Upgrade Progress Bar

9. After the upgrade is complete, click **OK** to return to the **Software/Firmware Download...** page.



**Figure 20 – Software Update Message**

10. If you are upgrading additional units, proceed to the next controller, and repeat steps 6 – 9.



# Appendix: Restoring a Configuration File

If a controller or CAN node fails during an upgrade, you can import to a replacement controller, the configuration file that you created in “Backing Up Your System Configuration,” on page 7.

**IMPORTANT NOTE:** The backup files are valid **ONLY** for the system and software version USED TO create THE BACKUP. If the replacement controller is a different version from the failed controller, contact Technical Support for assistance, before proceeding with the restoration procedure.

To import the configuration file using the web interface:

1. Launch **your** browser, and **Login** to the web interface.
2. From the home page, choose **Commands > Load/Save Config**.

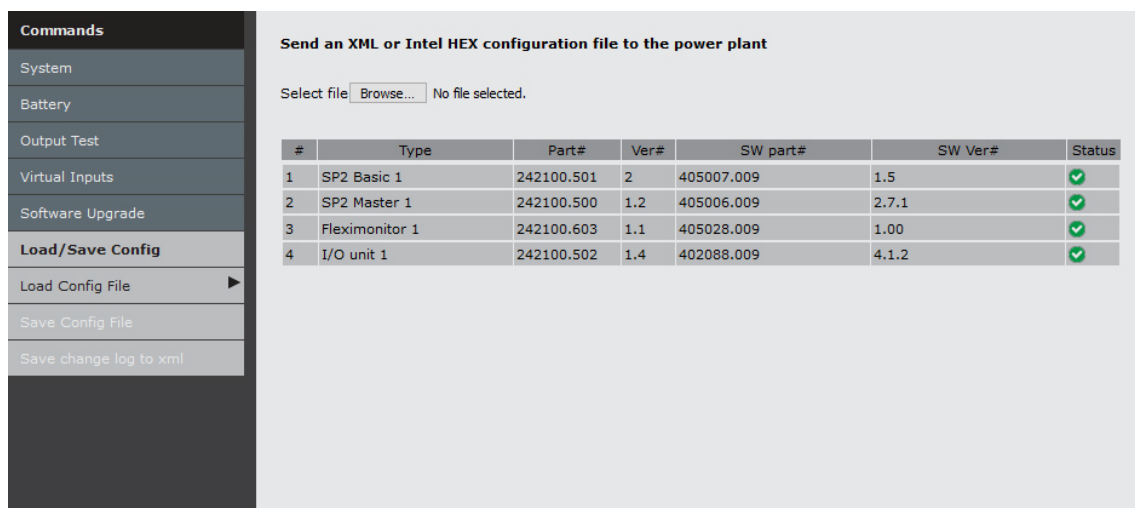


Figure 21 – Load Config Page

3. Choose **Browse**, and follow the prompts to select your configuration file.
4. In the web browser interface, choose **Upload Config file** to begin uploading the configuration. A progress bar indicates the status of the process.

**Send an XML or Intel HEX configuration file to the power plant**

Select file  UNIT\_11.HEX

- **UNIT\_11.HEX** () - 136093 bytes.  
Product Part#:405006.009

#	Type	Part#	Ver#	SW part#	SW Ver#	Status
1	SP2 Basic 1	242100.501	2	405007.009	1.5	✓
2	SP2 Master 1	242100.500	1.2	405006.009	2.6.2	✓
3	Fleximonitor 1	242100.603	1.1	405028.009	1.3	✓
4	I/O unit 1	242100.502	1.4	402088.009	4.2	✓

**Figure 22 – Load Config Page**

11.Return to applicable upgrade procedure.

This concludes the procedure to import a configuration file.

## Revision Table

Revision	Published	Description	CO
1	April 2014	Initial release	NA
2	Nov. 2014	Modified Important Notes on pages 5, and table 2 on page 16-17.	141112UA
3	Feb. 2019	Complete revision of text and screen captures.	NA

For assistance with technical questions and solutions, please contact Technical Support by email at [techsupport.us@deltaww.com](mailto:techsupport.us@deltaww.com) or by phone at 1-800-435-4872.



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