

CFX96, CFX96 Touch, CFX384, CFX384 Touch, and CFX Connect Firmware Update Instructions

Overview

This document contains instructions for updating firmware contained in the CFX96, CFX96 Touch, CFX384, CFX384 Touch, or CFX Connect real-time PCR systems. These systems contain a total of four user accessible firmware installations, three for the C1000, C1000 Touch, or CFX Connect thermal cycler chassis and one for the CFX96 or CFX384 optical reaction module. Firmware, corresponding file names, and the versions are as follows:

Firmware	File Name	Current Version
PXA270 processor firmware		
C1000	nkupdate.bin	3.2.128.129
C1000 Touch	C1000touchupdate.bin	1.101.XXX*
CFX Connect	nkupdate.bin	1.201.XXX*
HC12 thermal control firmware	update.s19	1.0.165.0
8051 CFX SmartLid firmware	slidmain.dld	0.54
DSP CFX Optical firmware	optheadlp1.dld	1.123

* For manual updating, check the Bio-Rad website or contact technical support to determine the latest versions available for these firmware.

Firmware upgrades are performed by either of these options:

- Using the software update feature of CFX Manager software version 2.1
- Placing a USB flash drive containing the appropriate files into any USB port on the C1000 or C1000 Touch thermal cycler chassis when the CFX96 or CFX384 optical module is installed.

NOTE: CFX Connect firmware can only be updated using CFX Manager software.

For any questions or problems you may encounter, please contact Bio-Rad Laboratories www.bio-rad.com. For technical support in the United States and Canada, call 1-800-424-6723 (toll-free phone), and select the technical support option.

Firmware Updating Instructions

Using the Software Updating Feature of CFX Manager Software version 2.1

From the **Help** menu, select **Check for Updates....** Follow the instructions in the **Software and Instrument Updates** window to update the firmware on selected instruments.

NOTE: An internet connection is required for the software to check for new versions of firmware. If no internet connection is available, the software will update the thermal cycler chassis firmware to the minimum that is required for the installed version of the software.

This completes the firmware update procedure using CFX Manager software.

Manual Firmware Updating

Step one: Obtain the Most Recent Firmware Files

- Obtain the most recent firmware files for your system by downloading them from www.bio-rad.com/pcr_updates or contacting your local Bio-Rad technical support department.

Copy the five firmware files appropriate for your system onto an empty Bio-Rad USB flash drive (supplied with the instrument).

NOTE: If you obtain the firmware files from technical support or the Bio-Rad website they may be compressed in a zip file format. Ensure the files are unzipped before transferring them to the USB flash drive by clicking on the zip file and extracting the files. Ensure the firmware files are copied to the root directory of the USB flash drive and not to a folder on the flash drive. The file names must match exactly as shown in the table above for the firmware update to complete successfully.

Step two: Record the Currently Installed Firmware Versions

- Insert the USB flash drive into any available USB port on the C1000 or C1000 Touch thermal cycler chassis.
- Turn on the instrument.
- Wait for the main menu/home screen to appear.

For the C1000 Touch (CFX96 Touch, CFX384 Touch):

- Touch **Tools**, then **About**.

For the C1000 (CFX96 or CFX384):

- Press **Utilities** (F3).
- Using the up and down keypad arrows, highlight **About** and then press **Enter**.
- Record the firmware versions currently installed on your instrument in the table below:

Firmware	Name Listed on Screen	Current Version	Installed Version
PXA270			
C1000	Firmware Version	3.2.128.129	_____
C1000 Touch	PXA270	1.101.XXX	_____
HC12	HC12	1.0.165.0	_____
8051 SmartLid	8051	0.54	_____
DSP	DSP	1.123	_____

- Compare your installed firmware versions with the current firmware versions listed in the table above. If any installed version files do not match the listed current version, use the instructions in the following sections to update all firmware files.

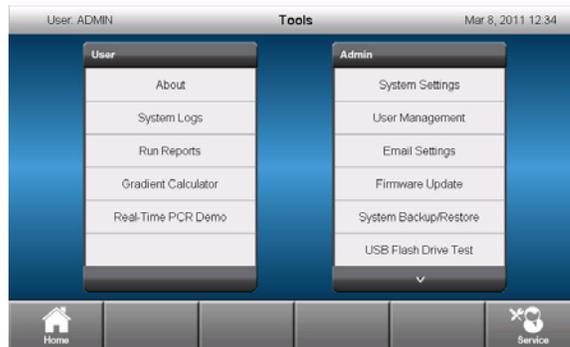
IMPORTANT: *Ensure the current and latest version of the PXA270 is installed first before any other firmware upgrades. The latest version of the PXA270 firmware is required to enable the upgrade of other firmware.*

Install required firmware upgrades in the order outlined in the instructions below.

Step three: Perform the Firmware Upgrade

For the C1000 Touch (CFX96 Touch, CFX384 Touch):

- Touch **Tools**.
- Log in as the administrator by touching **Admin**. If no password has been set, the Admin tools list appears without a login prompt.
- Touch **Firmware Update**.



- The USB flash drive will be scanned for the appropriate files and any updates that are available will have a check mark in the box adjacent to them.



- Touch **Update Firmware** to start the update process.
- Do not remove the USB flash drive at any time while updating is in progress.
- Once the update is complete, reboot the system.

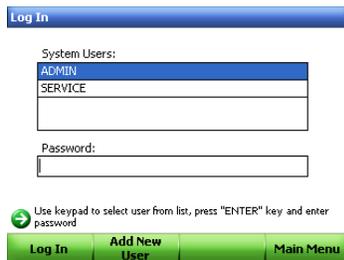


- Verify that the firmware versions have been updated by touching **About** in the **User** tools menu. This completes the firmware update procedure for CFX96 Touch and CFX384 systems.

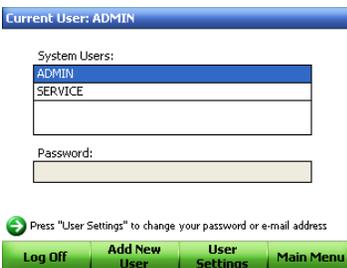
For the C1000 (CFX96, CFX384):

Login as Administrator

- Press **Main Menu** (F4) to return to the Main Menu screen.
- Press **Log In** (F1) to log in to the thermal cycler to perform the firmware updates.
- Highlight **ADMIN** under System User and press **Enter**. The cursor moves to the Password field.

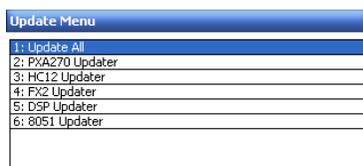


- Leave the Password field blank (the default setting) and press **Enter** again. The password field turns grey and the Current User in the screen title bar indicates **ADMIN**.



- Return to the main menu screen by pressing **Main Menu** (F4).
- Open the Utilities screen by pressing the **Utilities** button (F3).
- If the current PXA270 firmware is version 1.0.229.114, proceed to the next step. If the current PXA270 firmware is later than version 1.0.229.114, highlight **Administrator Settings** and press **Enter**.

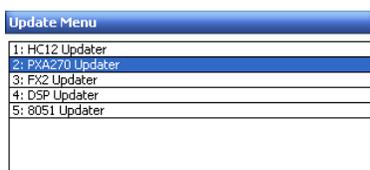
- Highlight **Update System** and press **Enter**.
- **NOTE:** If the installed HC12 firmware is version 1.0.150.0 or higher, you may highlight **Update all** and press enter. Follow on-screen instructions. Your system will automatically update all firmware files. When complete, restart the instrument and proceed to update verification (page 6).



Update PXA270 firmware

Note: this is the first of a two step process that will result in installation of the most up to date PXA270 version.

- Use the down arrow key to highlight **PXA270 Updater** and press **Enter**.



NOTE: PXA270 is listed SECOND (2:) in the update menu. **Do not** select HC12 at this time.

- Press **Enter** again to proceed.
- The Update screen appears with the currently installed version displayed.
- When ready, press **Enter**. The system scans the flash drive for the necessary file (NKUPDATE.BIN). The system copies the update file to memory and then scans the file.
- When prompted, press **Enter** to start the update process. **Do Not** turn off power or remove any devices during this process. This process will take 4 - 5 minutes to complete.



- When the update has completed the system indicates “Update Complete! Please Reboot ALL Systems.” Turn off the instrument, then turn it back on.

Update all firmware files

- Repeat Admin login and return to the **Update Menu** (page 4).
- Highlight **Update All** and press **Enter**.
- Press **Enter** again to proceed.
- The system will scan for all necessary files and display the updated versions found. **NOTE:** HC12 will display as “unknown”. This is normal and will not affect the update process. When ready, press **Enter**.



- The update process will start. **Do Not** turn off power or remove any devices during this process. The system will update the PXA270, 8051, DSP and finally HC12. This process takes several minutes to complete.



- When the update has completed the system indicates “Updates done, Please Reboot ALL Systems.” Turn off the instrument, then turn it back on.

Verify the Update has Completed Successfully

- From the main menu screen, press the **Utilities** button (F3).
- Highlight **About** and press **Enter**.
- Verify that the firmware files are correct.

This completes the firmware update procedure for CFX96 and CFX384 systems.