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| **Title**  **Flashing Application and Bootloader Firmware** | |
| **Document #** | **Version #** |
| **Effective Date** | **Prepared By** |
| **Revision Date** | **Approved By** |

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| **Policy** |  |
| **Purpose** |  |
| **Scope** |  |

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| **Materials** | USB Cable Type-C  Device Power | STM32CubeProgrammer  firmwareupdateGUI.exe (v1.0.0.5) |

**Procedure**

**Required files**

* Application firmware (pmfcAPP\_XXiYYiZZ)
* Bootloader firmware (pmfcBL\_XXiYYiZZ.hex)

**Required software**

* firmwareupdateGUI.exe (v1.0.0.5)
* STM32CubeProgrammer

**Uploading Application Firmware**

1. Run *firmwareupdateGUI.exe*

A computer screen shot of a device

Description automatically generated

1. Click on Link->Device COM port

A computer screen shot of a software update

Description automatically generated

1. Click on File->Firmware->Application

A screenshot of a computer

Description automatically generated

1. Select the application firmware file
2. Wait for the upgrade to complete. Progress bar is shown below

A computer screen shot of a software update

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1. Once upload completes, click OK on status message box. The new firmware version should appear in the lower left corner of the application.

A computer screen shot of a device

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**Uploading Bootloader Firmware**

1. Click on File->Firmware->DFU Bootloader

A computer screen shot of a software update

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1. A warning BEEP and message will appear. Click OK to complete the process.

A screenshot of a computer error

Description automatically generated

**BOOTLOADER UPDATE CAN NOT BE INTERRUPTED!!!! OTHERWISE DEVICE NEEDS TO BE OPENED TO LAUNCH DFU FROM HARDWARE.**

1. Click OK on INFORMATION. Application software will close automatically.

A computer screen shot of a computer software update

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1. Opening Device Manager should show the device went to DFU Mode

A close-up of a white background

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1. Run STM32CubeProgrammer

A blue square with white text

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1. Click on USB and Connect. Click on Download button then Browse. Select the bootloader file (pmfcBL\_XXiYYiZZ.hex)

A screenshot of a computer

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1. Make sure *Verify programming* and *Run after programming* are **checked**. Click on *Start Programming*
2. Connection from the device will be lost from STM32CuberProgrammer

A screenshot of a computer error

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1. Click OK (there will be more messages but just click OK) and Close STM32CubeProgrammer

**Verifying Application Firmware**

1. Use probeMFC or RHRII to check communications

**Restore Points**

1. After the upgrade, device will create a restore point automatically based on what is currently saved in bulk flash data memory.
2. To manually create a new restore point, click on *File->Restore Point->Create Restore Point*

A computer screen shot of a software update

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1. Once completed, software will prompt user that a restore point is created. Click OK to continue

A screenshot of a software update utility

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**Load Restore Points**

1. To load restore point, click on *File->Restore Point->Load Restore Point*

A computer screen shot of a software update

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1. Once complete, software will prompt user that the restore point was loaded and the image is saved in main internal data flash memory. Click OK to continue

A screenshot of a software update utility

Description automatically generated

NOTES: Restore points are created in manufacturing or in the field to create a “known good” flash page if configuration was changed by the user and want to revert to factory default.

**Device with non-working COM port**

* Unfortunately, these devices will need to be opened up to run DFU from hardware (by shorting DFU pins before applying power).
* Once device enters DFU mode, proceed with the step 5 to 7 of **Uploading Bootloader Firmware**
* Once completed, press and hold **TARE** button while applying power. Hold for 30 seconds and device should enter in *boot* mode (on display it says boot)
* Run the firmware update outlined under **Uploading Application Firmware**