



Updating Platform Firmware

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To update the platform firmware on secured devices, download the latest NVIDIA® BlueField® software images from [NVIDIA.com](https://www.nvidia.com).

Updating eMMC Boot Partitions Image

The capsule file `/lib/firmware/mellanox/boot/capsule/MmcBootCap` is used to update the eMMC boot partition and update the Arm pre-boot code (i.e., Arm trusted firmware and UEFI).

The capsule file is signed with NVIDIA keys. If UEFI secure boot is enabled, make sure the NVIDIA certificate files are enrolled into the UEFI database. Please refer to "[UEFI Secure Boot](#)" for more information on how to update the UEFI database key certificates.

To initiate the update of the eMMC boot partitions, run the following command:

```
ubuntu@localhost:~$ sudo bfrec --capsule /lib/firmware/mellanox/boot/capsule/MmcBootCap
```

After the command completes, reboot the system to process the capsule file. On the next reboot, UEFI will verify the capsule signature. If verified, UEFI will process the capsule file, extract the pre-boot image and burn it into the eMMC boot partitions.

Note that the pre-boot code is signed with the NVIDIA key. The bootloader images are installed into the eMMC with their associated certificate files. The public key is derived from the certificate file and its integrity is verified by the ROM code against an on-chip public key hash value stored in E-FUSES. If the verification fails, then the pre-boot code will not be allowed to execute.

Recovering eMMC Boot Partition

If the system cannot boot from the eMMC boot partitions for any reason, it is recommended to download a valid BFB image and boot it over the BlueField platform.

The recovery path relies on the platform to be configured to boot solely from the RShim interface (either RShim USB or RShim PCIe). With this configuration there must not be a way to interrupt or bypass the RoT when secure booting.

You will need to append a capsule file to the BFB prior to booting. Run:

```
$ mlx-mkbf --capsule MmcBootCap install.bfb recovery_install.bfb
```

Then boot the `recovery_install.bfb` using the RShim interface. Run:

```
$ cat recovery_install.bfb > /dev/rshim0/boot
```

The capsule file will be processed by UEFI upon boot.

Updating SPI Flash FS4 Image

The SPI flash contains the firmware image of the DPU firmware in FS4 format. The firmware image is provided along with the software.

There are two different ways to install the firmware image:

- From the BlueField console, using the following command:

```
ubuntu@localhost:~$ /opt/mellanox/mlnx-fw-updater/firmware/mlxfwmanager_sriov_dis_aarch64_<bf-dev>
```

- From the PCIe host console, using the following command:

```
# flint -d /dev/mst/mt<bf-dev>_pciconf0 -i firmware.bin b
```

Info

bf-dev is 41686 for BlueField-2 or 41692 for BlueField-3.