



## **Appendix - Software Upgrade Provisioning Flow**

This appendix details the steps for provisioning software components on NVIDIA® BlueField®-3 networking platform (DPU or SuperNIC).

**i Info**

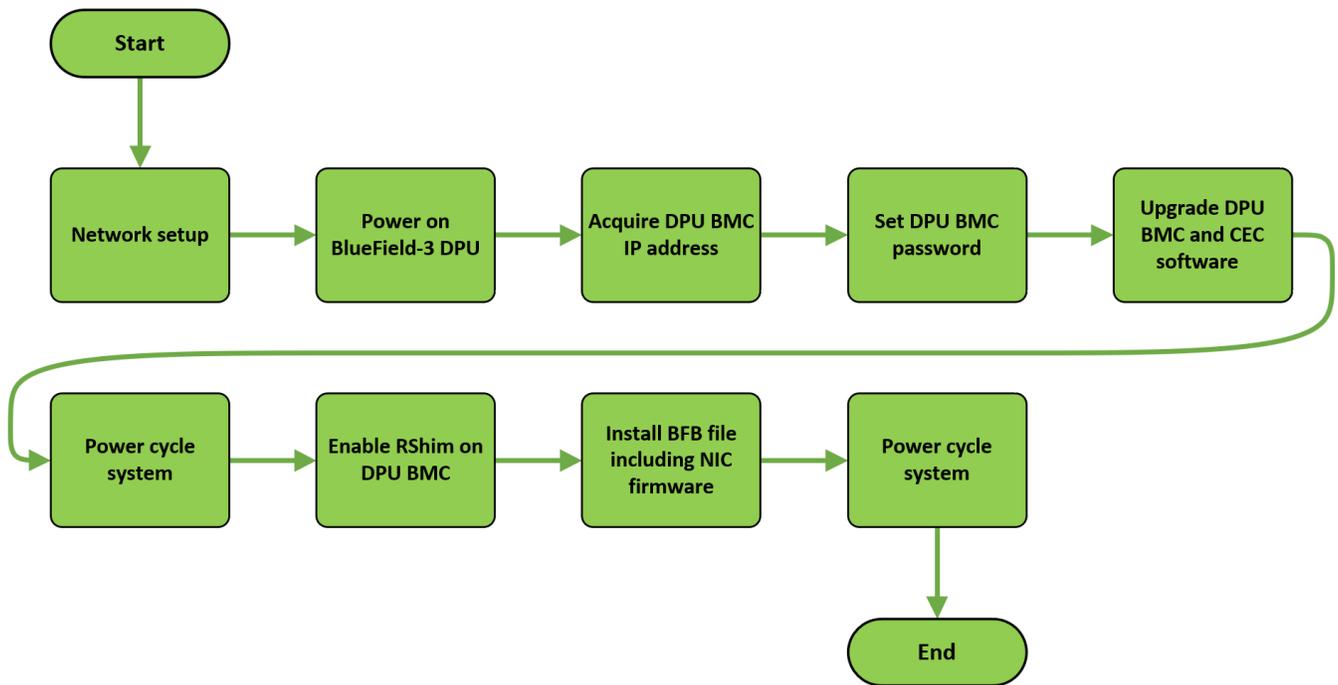
The procedure for BlueField BMC software upgrade is agnostic to the version of the software. Once upgraded, however, the procedure assumes you to be running the latest BMC software.

This workflow guarantees the most current software to be installed on various components of BlueField-3. This includes:

- BlueField BMC
- CEC
- Arm ATF
- Arm UEFI
- Arm OS
- NIC firmware

The process aims to ensure that all these components are up to date.

The following high-level flow diagram outlines the expected steps to be followed throughout the process:



1. Establish a connection between the onboard RJ-45 network interface and the management network. Refer to section "[Network Protocol Support](#)" for detailed instructions on network connectivity.
2. Power on the BlueField device. This can be accomplished manually or by utilizing either `ipmitool` or Redfish commands directed at the host's BMC.

- IPMItool example:

```
ipmitool -H <bmc_ip_or_hostname> -U <username> -P
<password> power on
```

Replace the parameters with the information relevant for your host BMC.

- Redfish example:

```
curl -X POST -k -u root:<password> -H "Content-Type:
application/json" -d '{"ResetType": "On"}'
https://<bmc_ip>/redfish/v1/Systems/<System_ID>/Actions/Co
```

Replace the parameters with the information relevant for your host BMC.

3. Acquire the BlueField BMC's MAC address from the label affixed to the BlueField (highlighted in the image). Use the BlueField BMC's MAC address to retrieve the assigned IP address from the DHCP server to enable communication with the BlueField BMC over the network.



4. If BlueField-3 is a new device which has not yet been provisioned, the BlueField BMC comes from the factory with a default password ( `openBmc` ). To establish communication with the BlueField BMC, you must change the default password. Refer to section "[Changing Default Password](#)" for instructions on changing the default password of the BlueField BMC.
5. Upgrade BlueField BMC and CEC software. This step is crucial for guaranteeing that all new features and functionalities are available on your device. Refer to section "[BMC and CEC Firmware Update](#)" for instructions on how to do that.
6. Power cycle the host. This can be accomplished by utilizing either `ipmitool` or Redfish commands directed at the host's BMC:

1. IPMItool example:

```
ipmitool -H <bmc_ip_or_hostname> -U <username> -P  
<password> power cycle
```

Replace the parameters with the information relevant for your host BMC.

2. Redfish example:

```
curl -k -u root:<password> -X POST
"https://<host_bmc_ip>/redfish/v1/Systems/1/Actions/Comput
-d '{"ResetType": "ForceRestart"}'
```

Replace the parameters with the information relevant for your host BMC.

7. Ensure that the RShim is disconnected from the host to enable the BlueField BMC to take ownership of it. To achieve this, follow the following steps in section "Enabling RShim on BMC" under "[Installing BFB](#)".
8. Install the BFB file and NIC firmware.

```
# echo WITH_NIC_FW_UPDATE=yes > bf.cfg
# cat <path_to_bfb> bf.cfg > new.bfb
```

Follow the instructions provided in the BFB image transfer guidelines provided in section "Transferring BFB Image" under "[Installing BFB](#)" while utilizing the newly created BFB file, `new.bfb`.

9. To ensure that the new NIC firmware takes effect, perform a final power cycle of the system as detailed in step 6.

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