

DPU Initial Configuration

LAB GUIDE

Audience

This workbook is intended for technical training students.

Objectives

- Install DOCA on the server
- Install BlueField Bundle on the DPU

Prerequisites and Guidelines

There are no prerequisites for this lab.

Good Luck,
NVIDIA Academy Team
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Install DOCA and BlueField Bundle

In this practice you will install DOCA on the host and BlueField Bundle on the DPU.

Task 1 – Download and Install DOCA on the Server

- Access the DOCA downloads page at the following URL and review the steps for downloading the appropriate DOCA package for your system:
<https://developer.nvidia.com/docta-downloads>
- For this exercise, you do not need to download it yourself. The required package, doca-host_2.9.1-018000-24.10-ubuntu2204_amd64.deb, has already been downloaded and is available in the following directory:

```
/home/student/AI_Infra/module5/hands_on_1
```

NVIDIA DOCA 3.0.0 Downloads

Select
Click on the green buttons that describe your target platform. Only supported platforms will be shown. By downloading and using the software, you agree to fully comply with the terms and conditions of the [DOCA EULA](#).

Host or BlueField	<input checked="" type="button"/> Host-Server	<input checked="" type="button"/> BlueField
Deployment Package	<input checked="" type="button"/> BF-Bundle	<input checked="" type="button"/> BF-FW-Bundle
Distribution	<input checked="" type="button"/> Ubuntu	
Version	<input checked="" type="button"/> 22.04	
Installer Type	<input checked="" type="button"/> BFB	

Download Installer for Linux Ubuntu 22.04 arm64-dpu

The BFB Image is available for download below.

BlueField SW bundle supporting BlueField-3 & BlueField-2, including DOCA 3.0.0, DPU-OS Ubuntu 22.04, ATF & UEFI 4.11.0.13611, NIC-FW BF2 24.45.1020, BF3 32.45.1020, BF3 BMC-FW 25.04-7, BF3 BMC-eROT 02.0195.0000, BF2 BMC-FW 25.04-7, BF2 BMC-eROT 04.0f

> BFB Image [Download \(1.3 GB\)](#)

Installation Instructions:

- Make sure to install host drivers - [DOCA-Host drivers](#)
- Run the following command:

```
$ bfb-install --bfb bf-bundle-3.0.0-135_25.04_ubuntu-22.04_prod.bfb --rshim rshim8
```

SHA256: 45df786d199bb960e15cc1ac03020272445ef6bb96661e53afa878370aa2a45

DOCA local Repo for the supported BlueField networking platform BlueField-OSs can be downloaded via the following link: [DOCA Repo for BlueField](#).
Additional installation options are detailed [here](#).
For additional BlueField Platform software information see [BlueField Documentation](#).

By downloading and using DOCA Framework you agree with [DOCA End User License Agreement](#).

- Enter root mode:

```
sudo -i
```

- Uninstall the current version of DOCA:

```
for f in $( dpkg --list | grep doca | awk '{print $2}' ); do echo $f ; apt remove --purge $f -y ; done
```

If the output is empty, then DOCA is not installed, and you can proceed to the next step.

```
/usr/sbin/ofed_uninstall.sh --force
```

```
sudo apt-get autoremove
```

- Unpack the installation file:

```
dpkg -i <installation file name>
```

- Update package manager:

```
apt update
```

- Verify that **rshim** is installed:

```
systemctl status rshim
```

Example of a system where **rshim** is not installed:

```
root@acad09:/home/student/AI_Infra/module5/hands_on_1# systemctl status rshim
Unit rshim.service could not be found.
```

Example of a system where **rshim** is installed but not enabled:

```
root@acad14:~# systemctl status rshim
○ rshim.service - rshim driver for BlueField SoC
    Loaded: loaded (/lib/systemd/system/rshim.service; disabled; vendor preset: enabled)
    Active: inactive (dead)
      Docs: man:rshim(8)
```

- If **rshim** is not installed, install it:

```
apt install rshim
```

- Start the rshim service:

```
sudo systemctl start rshim
```

- Install the **DOCA-All** package:

```
apt install -y doca-all mlnx-fw-updater
```

- Exit root shell:

```
exit
```

Task 2 – Download and Install BFB

- Install Minicom with the following command:

```
sudo apt install minicom
```

- Login to the BlueField DPU using the console:

```
sudo minicom -D /dev/rshim0/console
```

- Enter the default username / password:

```
ubuntu / ubuntu
```

- If prompted, change the default password to:

```
Nvidia_12345!
```

- Run the following command:

```
echo 172.0.0.1 $(hostname) >> /etc/hosts
```

This command prevents name resolution errors.

- Check the BFB file installed on the BlueField DPU:

```
sudo bfver
```

- Return to the server.

To exit minicom, press CTRL+A and then Q.

- The latest BFB file can be obtained from: <https://developer.nvidia.com/doca-downloads>. However, the file “bf-bundle-2.9.1-40_24.11_ubuntu-22.04_prod.bfb” has already been pre-downloaded for you and is available in the folder “/home/student/AI_Infra/module5/hands_on_1”:

```
cd /home/student/AI_Infra/module5/hands_on_1
```

- Install the BlueField DPU BFB file using the following command on the host:

```
sudo bfb-install --bfb <bfb file name> --rshim /dev/rshim0/
```

- After the installation is complete, log in to the BlueField DPU.

If prompted, change the default password (Default Username/Password: ubuntu/ubuntu) to “**Nvidia_12345!**”

Please note:

For production servers, it is recommended to power cycle the host (cold boot). However, this step can be skipped in the lab environment. Therefore, the following two commands are optional:

- If “**ipmitool**” is not installed, run the following command:

```
sudo apt install ipmitool -y
```

- Run the power cycle command:

```
sudo ipmitool power cycle
```

- Wait for the host to power up.
If the MST service is not enabled, start it with the following command:

```
sudo mst start
```

- Login to the BlueField DPU using the console and verify the BFB file version:

```
sudo bfver
```