



NVIDIA DOCA Developer Quick Start Guide

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This guide details the basic steps to bring up the NVIDIA DOCA development environment and to build and run the DOCA reference applications provided along with the DOCA software framework package.

Introduction

NVIDIA DOCA brings together a wide range of powerful APIs, libraries, and frameworks for programming and accelerating modern data center infrastructures. Like NVIDIA® CUDA® for GPUs, DOCA is a consistent and essential resource across all existing and future generations of DPU products.

This document is intended for those wishing to develop applications using the DOCA framework.

Note

Not sure which installation type to use? To expand on different DOCA user types and the relevant installation for each, see [BlueField DPU and DOCA User Types](#).

Install DPU

Install the DPU into your host according to the installation instructions in the [DPU's hardware user guide](#). The steps include installing the DPU into the PCIe slot and properly securing it in the chassis. Make sure your host OS is listed under the [supported operating systems](#) section.

Register to NVIDIA DOCA Developer Zone

As part of the installation process, you must provide your NVIDIA account information. Get your NVIDIA Developer Zone access [here](#).

Install DOCA Software Package

A detailed step-by-step process for installing the required development software on both the host and DPU can be found in the [NVIDIA DOCA Installation Guide for Linux](#).

During installation, you must change the default password, `ubuntu`, to access the NVIDIA® BlueField® DPU.

Access DPU

After a successful installation, on the host, the RShim driver exposes a virtual Ethernet device called `tmfifo_net0`.

1. Configure the host side of the `tmfifo_net0` with a static IP to enable IPv4-based communication to the DPU OS according to the instructions on "[Host-side Interface Configuration](#)" in the *NVIDIA BlueField DPU BSP* document.
2. Log into the DPU's Ubuntu-based OS by running the following command from the host:

```
host# ssh ubuntu@192.168.100.2
```

Use the DPU password you defined during the installation process.

At this stage DOCA is installed on the DPU and the host server.

Run Reference DOCA Application

DOCA package assets (e.g., references, tools) are located on the DPU and on the host under `/opt/mellanox/doca/`.

The DOCA package includes a set of reference applications to facilitate developer on-boarding. Please refer to the [DOCA Reference Applications](#) and [DOCA Programming Guide](#) for more information.

To run the [DOCA Secure Channel](#) reference application which demonstrates accelerated and secure message transmission between the host and the DPU over the Comm Channel interface:

1. Run the application as server on the DPU using the following command (all parameters are available in the [secure channel application guide](#)):

```
#  
/opt/mellanox/doca/applications/secure_channel/bin/doca_secure  
-s 256 -n 10 -p 03:00.0 -r 3b:00.0
```

2. Run the application as client on the host using the following command (all parameters are available in the [secure channel application guide](#)):

```
#  
/opt/mellanox/doca/applications/secure_channel/bin/doca_secure  
-s 256 -n 10 -p 3b:00.0
```

More Information

To learn more about NVIDIA BlueField DPUs, refer to the [NVIDIA BlueField DPU Hardware Manuals](#).

Info

For questions, comments, and feedback, please contact us at DOCA-Feedback@exchange.nvidia.com.

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