



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.

1. 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 BlueField DPU and SuperNIC 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 and DOCA User Types](#).

2. Install BlueField Networking Platform

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

3. Install DOCA Software Package

A detailed step-by-step process for downloading and installing the required development software on both the host and BlueField 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® networking platform.

4. Access BlueField

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 BlueField OS according to the instructions on "[Host-side Interface Configuration](#)" in the *NVIDIA BlueField DPU BSP* document.
2. Log into BlueField's Ubuntu-based OS by running the following command from the host:

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

Use the BlueField networking platform password you defined during the installation process.

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

5. Run Reference DOCA Application

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

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 BlueField over the Comm Channel interface:

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

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

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

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

6. More Information

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

Info

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

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