



NVIDIA DOCA Comm Channel

Sample Guide

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Chapter 1. Introduction

DOCA Comm Channel is a secure, network independent communication channel between the host and the BlueField-2 DPU.

For more information about DOCA Comm Channel library, refer to [NVIDIA DOCA Comm Channel Programming Guide](#).

Chapter 2. Dependencies

The library requires a minimum BlueField-2 firmware version of 24.35.1012.

Chapter 3. Prerequisites

N/A

Chapter 4. Running the Sample

1. Refer to the following documents:

- ▶ [NVIDIA DOCA Installation Guide for Linux](#) for details on how to install BlueField-related software.
- ▶ [NVIDIA DOCA Troubleshooting Guide](#) for any issue you may encounter with the installation, compilation, or execution of DOCA applications.

2. To build a given sample:

```
cd /opt/mellanox/doca/samples/doca_comm_channel/<sample_name>
meson build
ninja -C build
```



Note: The binary `doca_<sample_name>` will be created under `./build/`.

3. Sample (e.g., `cc_server`) usage:

```
Usage: doca_cc_server [DOCA Flags] [Program Flags]
DOCA Flags:
  -h, --help                Print a help synopsis
  -v, --version             Print program version information
  -l, --log-level           Set the log level for the program <CRITICAL=20,
ERROR=30, WARNING=40, INFO=50, DEBUG=60>

Program Flags:
  -d, --dev-pci            Comm Channel DOCA device PCI address
  -r, --rep-pci           Comm Channel DOCA device representor PCI address
  -t, --text              Text to be sent to the other side of channel
```



Note: The flag `--rep-pci` is relevant only on the DPU.

4. For additional information per sample, use the `-h` option:

```
./build/doca_<sample_name> -h
```

Chapter 5. Samples

5.1. CC Client

This sample illustrates how to create a simple client on the host to communicate with a server on the DPU.

The sample logic includes:

1. Creating Comm Channel endpoint.
2. Parsing PCIe address.
3. Opening Comm Channel DOCA device based on the PCIe address.
4. Setting Comm Channel endpoint properties.
5. Connecting current endpoint to server side.
6. Sending the entered text message.
7. Receiving server response.
8. Closing connection and freeing resources.

Reference:

- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_client/cc_client_sample.c`
- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_client/cc_client_main.c`
- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_client/meson.build`

5.2. CC Server

This sample illustrate how to create a simple server on the DPU to communicate with a client on the host.

The sample logic includes:

1. Creating Comm Channel endpoint.
2. Parsing PCIe address.
3. Opening Comm Channel DOCA device based on the PCIe address.
4. Opening Comm Channel DOCA device representor based on the PCIe address.

5. Setting Comm Channel endpoint properties.
6. Listening for new connections.
7. Waiting until new message arrives.
8. Sending the entered text message as a response.
9. Closing connection and freeing resources.

Reference:

- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_server/cc_server_sample.c`
- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_server/cc_server_main.c`
- ▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_server/meson.build`

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