



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.

Comm Channel allows the host to control services on the DPU, activate certain offloads or just to exchange messages using client-server framework.

Communication is based on RDMA queue-pairs (QPs). Each packet sent by the QP consists of two parts: Header and data. The header is a 32-bit structure that holds metadata on the msg to allow the use of a handshake protocol, credit incremental over data packets, and error handling.

The client side can communicate only with one server at a time while the server side is able to communicate with multiple clients.

The API allows communication between any PF/VF/SF on the host to the service on the Arm.

For more information about DOCA Comm Channel library, refer to NVIDIA DOCA Comm Channel Guide.

Chapter 2. Dependencies

The library requires a minimum DPU firmware version of 24.32.0458.

Chapter 3. Prerequisites

N/A

Chapter 4. Samples

4.1. 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. Initializing needed Comm Channel structures.
2. Creating Comm Channel endpoint.
3. Connecting current endpoint to server side.
4. Sending Hello message.
5. Receiving server response.
6. Closing connection and freeing resources.

Reference:

▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_client/cc_client.c`

4.2. 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. Initializing needed Comm Channel structures.
2. Creating Comm Channel endpoint.
3. Listening for new connections.
4. Waiting until new message arrives.
5. Sending Hello message as a response.
6. Closing connection and freeing resources.

Reference:

▶ `/opt/mellanox/doca/samples/doca_comm_channel/cc_server/cc_server.c`

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