



# NVIDIA FlexIO

## Sample Guide

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# Chapter 1. Introduction

NVIDIA® BlueField®-3 DPU features a high-speed hardware data path accelerator (DPA). This allows accelerating critical data path flow.

This document describes FlexIO samples based on the FlexIO SDK. These samples illustrate how to use the FlexIO API to configure and execute code on the DPA.

For more information about FlexIO driver, refer to [NVIDIA DOCA FlexIO SDK Programming Guide](#).

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## Chapter 2. Dependencies

BlueField-3 DPU is required to run the samples.

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## Chapter 3. Prerequisites

N/A

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# 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 samples.

2. To build a given sample:

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



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

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

```
Usage: flexio_rpc [DOCA 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>
```

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

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

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# Chapter 5. Samples

## 5.1. FlexIO RPC

This sample illustrates how to invoke a function on the DPA.

The sample logic include:

1. Creating FlexIO process.
2. Calling the remote function `flexio_rpc_calculate_sum` on the DPA.
3. Printing return value to the standard output.

References:

- ▶ `/opt/mellanox/doca/samples/flexio/flexio_rpc/device/flexio_rpc_device.c`
- ▶ `/opt/mellanox/doca/samples/flexio/flexio_rpc/host/flexio_rpc_sample.c`
- ▶ `/opt/mellanox/doca/samples/flexio/flexio_rpc/host/meson.build`
- ▶ `/opt/mellanox/doca/samples/flexio/flexio_rpc/flexio_rpc_main.c`
- ▶ `/opt/mellanox/doca/samples/flexio/flexio_rpc/meson.build`

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