



NVIDIA DOCA Socket Relay

User Guide

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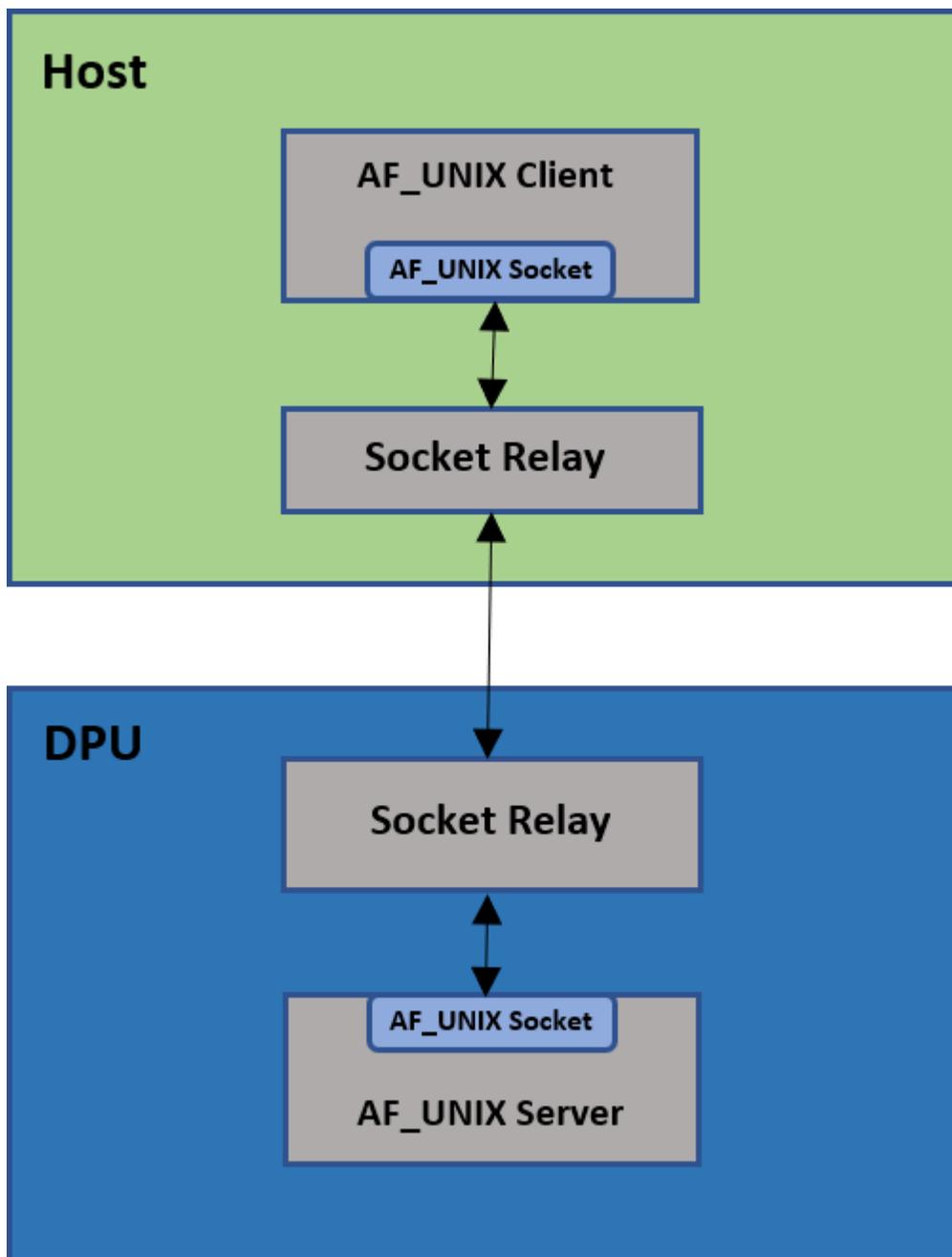
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Chapter 1. Introduction

DOCA Socket Relay allows Unix Domain Socket (AF_UNIX family) server applications to be offloaded to the DPU while communication between the two sides is proxied by [DOCA Comm Channel](#).

Socket relay only supports SOCK_STREAM communication with a limit of 512 AF_UNIX application clients.

The tool is coupled to the client AF_UNIX server application. That is, a socket relay instance should be initiated per AF_UNIX server application.



Socket relay is transparent to the application except for the following TCP flows:

- ▶ Connection termination must be done by the host side application only
- ▶ Once a FIN packet is sent (shutdown system call has been made) by the host side application, data cannot be transferred between the DPU and the host, and the connection must be closed.

The following details the communication flow between the client and server:

- ▶ The AF_UNIX client application connects to the socket relay AF_UNIX server in the same way as in the original flow
- ▶ The AF_UNIX client application sends SOCK_STREAM packets
- ▶ The socket relay (host) AF_UNIX server receives the client application packets, and the Comm Channel client sends them on the channel
- ▶ The socket relay (DPU) Comm Channel server receives the client application packets and the AF_UNIX client sends them to the user's AF_UNIX server application

Chapter 2. Prerequisites

Windows 10 build 17063 is the minimal Windows version to run DOCA Socket Relay on a Windows host.

Chapter 3. Dependencies

NVIDIA® BlueField®-2 firmware version 24.35.1012 or higher.

Chapter 4. Execution

To execute DOCA Socket Relay:

Usage: `doca_socket_relay` [DOCA Flags] [Program Flags]

DOCA Flags:

<code>-h, --help</code>	Print a help synopsis
<code>-v, --version</code>	Print program version information
<code>-l, --log-level</code>	<CRITICAL=20, ERROR=30, WARNING=40, INFO=50, DEBUG=60>

Program Flags:

<code>-s, --socket</code>	Unix domain socket path, host side will bind to and DPU connect to
<code>-n, --cc-name</code>	Comm Channel service name
<code>-p, --pci-addr</code>	DOCA Comm Channel device PCI address
<code>-r, --rep-pci</code>	DOCA Comm Channel device representor PCI address (needed only on DPU)

For example (DPU side):

```
doca_socket_relay -s /tmp/sr_server.socket -n cc_channel -p 03:00.0 -r b1:00.0
```

To run `doca_socket_relay` using a JSON file:

```
doca_socket_relay --json [json_file]
```

For example:

```
doca_socket_relay --json /tmp/doca_socket_relay.json
```

Chapter 5. Arg Parser DOCA Flags

Refer to the [NVIDIA DOCA Arg Parser Programming Guide](#) for more information.

Flag Type	Short Flag	Long Flag/ JSON Key	Description	JSON Content
General flags	l	log-level	Sets the log level for the application: <ul style="list-style-type: none"> ▶ CRITICAL=20 ▶ ERROR=30 ▶ WARNING=40 ▶ INFO=50 ▶ DEBUG=60 	<code>"log-level": 60</code>
	v	version	Print program version information	N/A
	h	help	Print a help synopsis	N/A
Program flags	s	socket	AF_UNIX (SOCK_STREAM) path. On the host, this is the path of the socket relay AF_UNIX server for the client's application to connect to. On the DPU, this is the path of the client AF_UNIX server application.	<code>"socket": "/tmp/uds-server.socket"</code>

 **Note:**
This

Flag Type	Short Flag	Long Flag/ JSON Key	Description	JSON Content
			<div style="background-color: #cccccc; padding: 2px;">flag is mandatory.</div>	
	n	cc-name	Comm Channel service name.	<code>"cc-name": sr_channel</code>
			<div style="background-color: #cccccc; padding: 2px;">  Note: This flag is mandatory. </div>	
	p	pci-addr	DOCA Comm Channel device PCIe address.	<code>"pci-addr": b1:00.1</code>
			<div style="background-color: #cccccc; padding: 2px;">  Note: This flag is mandatory. </div>	
	r	rep-pci	Comm Channel DOCA device representor PCIe address.	<code>"rep-pci": b1:02.2</code>
			<div style="background-color: #cccccc; padding: 2px;">  Note: This flag is mandatory only on the DPU. </div>	

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