



General Support

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Embedded DOCA Firmware Components

Component	Version	Description
ATF	v2.2(release):4.8.0-41-gf0ff3a4	Arm-trusted firmware is a reference implementation of secure world software for Arm architectures
UEFI	4.8.0-36-gf01f42f	UEFI is a specification that defines the architecture of the platform firmware used for booting and its interface for interaction with the operating system
BlueField-3 NIC firmware	32.42.1000	Firmware is used to run user programs on the BlueField-3 which allow hardware to run
BlueField-2 NIC firmware	24.42.1000	Firmware is used to run user programs on the BlueField-2 which allow hardware to run
BMC firmware	24.07	BlueField BMC firmware
BlueField-3 eROT (Glacier)	00.02.0182.000	BlueField-3 eROT firmware
BlueField-2 eROT (CEC)	cec_ota_BM GP-04.0f	BlueField-2 eROT firmware

Supported NIC Firmware Versions

Note

DOCA 2.9.0 will be the last DOCA release to support ConnectX-4. DOCA 2.9.0 will be an LTS version and will be supported for 3 years for bug fixes and CVE updates.

Adapter Card	Bundled Firmware Version
BlueField-2	24.42.1000
ConnectX-7	28.42.1000
ConnectX-6 Lx	26.42.1000
ConnectX-6 Dx	22.42.1000
ConnectX-6	20.42.1000
ConnectX-5/ConnectX-5 Ex	16.35.4030
BlueField	18.33.1048
ConnectX-4 Lx	14.32.1010
ConnectX-4	12.28.2006

To obtain the official firmware versions, refer to the NVIDIA [Firmware Download](#) page.

Embedded DOCA Drivers

Component	Version	Description	Licenses
clust erkit	1.14.462- 1.2407052	A multifaceted node assessment tool for high-performance clusters	BSD
colle ctx- clxap i	1.18.2- 17111037	A library which exposes the CollectX API, which allows any 3 rd party to easily use CollectX functionality in their own programs	Proprietar y
dpac c	1.8.0	DPACC is a high-level compiler for the DPA processor which compiles code targeted for the data-path accelerator (DPA) processor into a device executable and generates a DPA program	Proprietar y
dpcp	1.1.49- 1.2407052	DPCP provides a unified flexible interface for programming IB devices using DevX	Proprietar y
flexio	24.04.2148 -0	FlexIO SDK exposes an API for managing the device and executing native code over the DPA processor	Proprietar y

Component	Version	Description	Licenses
fwctl	24.07- OFED.24.0 7.0.5.1.1	Subsystem designed to standardize the secure firmware interface for userspace, focusing on debugging, configuration, and provisioning	GPLv2
hcoll	4.8.3228- 1.2407052	HCOLL contains support for building runtime configurable hierarchical collectives	Proprietary
ibarr	0.1.3- 1.2407052	ip2gid address resolution and gid2lid path record resolution	GPL-2.0 with Linux-syscall-note or BSD-2-Clause
ibdump	6.0.0- 1.2407052	Dump of InfiniBand traffic; diagnostic tool	BSD2+GPL2
ibsim	0.12- 1.2407052	Open-source InfiniBand fabric simulator	GPLv2 or BSD
ibutils	2.1.1	ibdiagnet scans the fabric using directed route packets and extracts all the available information regarding its connectivity and devices.	Proprietary
ibutils2	2.1.1- 0.21800.M LNX202408 01.ga4352 587.24070 52	Utilities for InfiniBand	Proprietary
iser	24.07- OFED.24.0 7.0.5.2.1	Storage related drivers	GPLv2
isert	24.07- OFED.24.0 7.0.5.2.1	Storage related drivers	GPLv2

Component	Version	Description	Licenses
kern el- mft	4.29.0-127	Kernel part of MFT tools (for firmware burning, etc.)	Dual BSD/GPL
kne m	1.1.4.90ml nx3- OFED.23.1 0.0.2.1.1	Open-source kernel module that enables high-perf intra-node MPI communication	BSD and GPLv2
libvma	9.8.60-1	The NVIDIA® Messaging Accelerator (VMA) library accelerates latency-sensitive and throughput- demanding TCP and UDP socket-based applications by offloading traffic from the user-space directly to the NIC, without going through the kernel and the standard IP stack (kernel-bypass)	GPLv2 or BSD
libxlio	3.31.2-1	The NVIDIA® XLIO software library boosts the performance of TCP/IP applications based on NGINX (CDN, DoH, etc.) and storage solutions as part of the SPDK	GPLv2 or BSD
mft	<u>4.29.0-131</u>	NVIDIA® MFT is a set of firmware management and debug tools for NVIDIA devices	Proprietar y
mlnx - dpdk	22.11.0- 2404	Equivalent to DPDK upstream. The versioning of MLNX_DPDK indicates which upstream DPDK it is compatible with it (e.g., 22.11 is compatible with upstream DPDK 2022.11).	BSD, LGPLv2, and GPLv2
mlnx - en	24.07- 0.5.2.0.ge0 8362d	Kernel drivers part for Ethernet-only package	GPLv2
mlnx - ethtool	24.07- 0.5.2.0.ge0 8362d	Ethtool with optional MLNX adaptation	GPL
mlnx -	6.9.0- 1.2407052	IPRoute with optional MLNX adaptation	GPL

Component	Version	Description	Licenses
iproute2			
mlnx-libsnap	1.6.0-1	Libsnap is a common library designed to assist common tasks for applications wishing to interact with emulated hardware over BlueField and take the most advantage from hardware capabilities	Proprietary
mlnx-nfsrdma	24.07-OFED.24.07.0.5.2.1	Storage related driver for NFS over RDMA	GPLv2
mlnx-nvme	24.07-OFED.24.07.0.5.2.1	Storage related driver for NVMe	GPLv2
mlnx-ofa_kernel	24.07-OFED.24.07.0.5.2.1	Kernel drivers for Ethernet InfiniBand together	GPLv2
mlnx-snap	3.8.0-3	BlueField SNAP for NVMe and virtio-blk enables hardware-accelerated virtualization of local storage	Proprietary
mlnx-tools	24.07-0.2407052	Tools for loading modules, configurations, scripts, etc.	GPLv2 or BSD
mlx-regex	1.2-ubuntu1	RegEx is a library that provides RegEx pattern matching to DOCA applications using the regular expression processor (RXP) or software-based engines when required	Proprietary
mlx-steering-dump	1.0.0-0.2407052	Hardware/software steering dump parsing tools	GPLv2

Component	Version	Description	Licenses
mpitests	3.2.24-2ffc2d6.2407052	Test suite for benchmarking the MPI	BSD
mstflint	4.26.0-1	User space part of our MFT tools	GPL/BSD
multi-perf	3.0-3.0.2407052	Linux tool for perf testing	BSD 3-Clause, GPL v2 or later
ofed-scripts	24.07-OFED.24.07.0.5.2	Scripts used to build OFED	GPL/BSD
openmpi	4.1.7a1-1.2407052	MPI implementation (for RDMA/RoCE) with some improvements done by the HPC team	BSD
opensm	5.20.0.MLN X20240801.ef1f438a-0.1.2407052	InfiniBand Subnet Manager and Subnet Administrator based on OpenSM	GPLv2 or BSD
openvswitch	2.17.8-1.2407052	OVS (virtual switch), DPDK based	ASL 2.0, LGPLv2+, and SISSL
perftest	24.07.0-0.44.g57725f2.2407052	Test suite for performance	BSD 3-Clause, GPL v2, or later
rdma-core	2407mlnx52-1.2407052	Implementation of the RDMA verbs	GPLv2 or BSD
rivermax	1.51.4	NVIDIA® Rivermax® is an optimized networking SDK for media and data streaming applications	Proprietary

Component	Version	Description	Licenses
rshim	2.0.38-0.gc0f82f3	The user-space driver to access the BlueField SoC via the RShim interface, providing ways to push boot stream, debug the target, or login via the virtual console or network interface	GPLv2
sharp	3.8.0.MLNX20240801.618ff287-1.2407052	Improves the performance of MPI and Machine Learning collective operation by offloading from CPUs and GPUs to the network and eliminating the need to send data multiple times between endpoints	Proprietary
sockperf	3.10-0.git5ebd327da983.2407052	Network benchmarking utility over socket API UDP/TCP designed for testing network performance (latency and throughput)	BSD
spdk	23.01.5-21	SPDK provides a set of tools and libraries for writing high performance, scalable, user-mode storage applications	Proprietary
srp	24.07-OFED.24.07.0.5.2.1	Storage-related driver for SCSI RDMA Protocol initiator	GPLv2
ucx	1.17.0-1.2407052	High-level application-oriented API for high-performance communication over RDMA networks	BSD
virtio-net-controller	24.07.11-1	Virtio-net-controller is a systemd service running on BlueField, with a user interface front-end to manage the emulated virtio-net devices	Proprietary
vma	9.8.60-1	Accelerates latency-sensitive and throughput-demanding TCP and UDP socket-based applications by offloading traffic from the user-space directly to the network interface card (NIC) or Host Channel Adapter (HCA)	GPLv2 or BSD
xlio	3.31.2-1	Boosts the performance of TCP/IP applications based on NGINX (CDN, DoH, etc.) and storage solutions as part of the SPDK	GPLv2 or BSD

Component	Version	Description	Licenses
xpmem	2.7.3-1.2407052	Kernel module to enable inter-process mapping for memory copy in user space	GPLv2 and LGPLv2.1
xpmem-lib	2.7-0.2310055	High-performance inter-process memory sharing	LGPLv2.1

DOCA Packages

Device	Component	Version	Description
Host	DOCA Devel	2.8.0	Software development kit package and tools for developing host software
	DOCA Runtime	2.8.0	Runtime libraries and tools required to run DOCA-based software applications on host
	DOCA Extra	2.8.0	Contains helper scripts (doca-info, doca-kernel-support)
	DOCA OFED	2.8.0	Software stack which operates across all NVIDIA network adapter solutions
	Arm emulated (QEMU) development container	4.8.0	Linux-based BlueField Arm emulated container for developers
Target BlueField DPU (Arm)	BlueField BSP	4.8.0	BlueField image and firmware
	DOCA SDK	2.8.0	Software development kit packages and tools for developing Arm software
	DOCA Runtime	2.8.0	Runtime libraries and tools required to run DOCA-based software applications on Arm

Supported Host OS and Features per DOCA-Host Installation Profile

The default operating system included with the **BlueField Bundle** (for **DPU and SuperNIC**) is Ubuntu 22.04.

The supported operating systems on the **host machine** per **DOCA-Host** installation profile are the following:

Note

Only the following generic kernel versions are supported for DOCA local repo package for host installation.

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			do ca - all	do ca - net work ing	do ca - of ed							
Alinux 3.2	x86	5.10.134-13.al8.x86_64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗
Alma 8.5	x86	4.18.0-348.12.2.EL8_5.X86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
Anolis OS 8.4	aarch64	4.18.0-348.2.1.AN8_4.aarch64				Community						
	x86	4.18.0-305.AN8.X86_64				Community						
Anolis OS 8.6	aarch64	5.10.134+				Primary						
	x86	5.10.134+				Primary						
BCLinux 21.10 SP2	aarch64	4.19.90-2107.6.0.0098.oe1.bclinux.aarch64				Primary						
	x86	4.19.90-2107.6.0.0100.oe1.bclinux.x86_64				Primary						
BCLinux 22.10	aarch64	5.10.0-153.24.0.100.6.oe2203sp2.bclinux.aarch64				Primary						
	x86	5.10.0-153.24.0.10				Primary						

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
		0.6.oe2203sp2.bclinux.x86_64										
Cent OS Stream 8	aarch64	4.18.0-552.EL8.AARCH64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86_64	4.18.0-552.el8.x86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
Cent OS Stream 9	aarch64	5.14.0-480.EL9.AARCH64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86_64	5.14.0-480.el9.x86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
CTyuanOS 2.0	aarch64	4.19.90-2102.2.0.0062.ctl2.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86_64	4.19.90-2102.2.0.0062.ctl2.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
CTyuanOS 23.01	aarch64	5.10.0-136.12.0.86.ctl3.aarch64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			✓	✓	✓							
	x86	5.10.0-136.12.0.86.ctl3.x86_64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗
Debian 10.8	armch64	4.19.0-14-arm64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	4.19.0-14-amd64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗
Debian 10.9	x86	4.19.0-14-amd64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	4.19.0-16-amd64	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
Debian 10.13	armch64	4.19.0-21-arm64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	4.19.0-21-amd64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗
Debian 11.3	armch64	5.10.0-13-arm64	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86	5.10.0-13-amd64	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
Debian 12.1	armch64	6.1.0-10-arm64	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			✓	✗	✓							
	x86	6.1.0-10-amd64	✓	✓	✓	Primary	✓	✗	✗	✓	✗	✗
Debian 12.5	arch64	6.1.0-18-arm64	✓	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86	6.1.0-18-amd64	✓	✗	✓	Primary	✓	✗	✗	✓	✗	✗
Euler OS 2.0 SP9	arch64	4.19.90-vhulk2006.2.0.h171.eulerosv2r9.aarch64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86	4.18.0-147.5.1.0.h269.eulerosv2r9.x86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
Euler OS 2.0 SP10	arch64	4.19.90-vhulk2110.1.0.h860.eulerosv2r10.aarch64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86	4.18.0-147.5.2.4.h694.eulerosv2r10.x86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
Euler OS 2.0 SP11	aarch64	5.10.0-60.18.0.50.h323.eulerosv2r11.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	5.10.0-60.18.0.50.h323.eulerosv2r11.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Euler OS 2.0 SP12	aarch64	5.10.0-136.12.0.86.h1032.eulerosv2r12.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	5.10.0-136.12.0.86.h1032.eulerosv2r12.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Kylin 1.0 SP2	aarch64	4.19.90-24.4.v2101.ky10.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	4.19.90-24.4.v2101.ky10.x86_64	✗	✗	✓	Primary	✓	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPU Direct Storage (GDS)	UCX-CUDA Version
Kylin 1.0 SP3	aarch64	4.19.90-52.22.v2207.ky10.aarch64	✗	✗	✓	Primary	✓	✗	✗	✗	✗	✗
	x86	4.19.90-52.22.v2207.ky10.x86_64	✗	✗	✓	Primary	✓	✗	✗	✗	✗	✗
Linux Kernel 6.10	aarch64	6.10	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86		✗	✗	✓	Primary	✓	✗	✓	✓	✗	✗
Mariner 2.0	x86	5.15.148.2-2.cm2	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 7.9	x86	5.4.17-2011.6.2.el7uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 8.4	x86	5.4.17-2102.201.3.el8uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 8.6	x86	5.4.17-2136.307.3.1.el8uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			✓	✓	✓							
Oracle Linux 8.7	x86	5.15.0-3.60.5.1.el8uek.x86_64	✓	✓	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 8.8	x86	5.15.0-101.103.2.1.el8uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 9.0	x86	5.15.0-0.30.19.el9uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 9.1	x86	5.15.0-3.60.5.1.el9uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
Oracle Linux 9.2	x86	5.15.0-101.103.2.1.el9uek.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
OpenSUSE 15.3	arch64	-	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86	5.3.18-150300.59.43-DEFAULT	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
open Euler 20.03 SP1	aarch64	4.19.90-2012.4.0.0053.OE1.aarch64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
	x86	4.19.90-2110.8.0.0119.OE1.X86_64	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
open Euler 20.03 SP3	aarch64	4.19.90-2112.8.0.0131.oe1.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	4.19.90-2112.8.0.0131.oe1.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
open Euler 22.03	aarch64	5.10.0-60.18.0.50.oe2203.aarch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	5.10.0-60.18.0.50.oe2203.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
open Euler 22.03 SP1	x86	5.10.0-136.12.0.86.oe2203sp1.x86_64	✓	✗	✓	Primary	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
Photon OS 3.0	x86	4.19.225-3.ph3	✗	✗	✓	Community	✗	✗	✗	✗	✗	✗
RHEL/CentOS 8.0	arch64	4.18.0-80.el8.arch64	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5
	x86	4.18.0-80.el8.x86_64	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5
RHEL/CentOS 8.1	arch64	4.18.0-147.el8.arch64	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5
	x86	4.18.0-147.el8.x86_64	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5
RHEL/CentOS 8.2	arch64	4.18.0-193.el8.arch64	✗	✗	✓	Primary	✓	✓	✗	✓	✓	12.5
	x86	4.18.0-193.el8.x86_64	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
RHEL/CentOS 8.3	arch64	4.18.0-240.el8.arch64	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5
	x86	4.18.0-240.el8.x86	✗	✗	✓	Primary	✓	✓	✗	✗	✓	12.5

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
		_64										
RHEL/CentOS 8.4	aarch64	4.18.0-305.el8.aarch64	✗	✗	✓	Primary	✓	✓	✗	✓	✓	12.5
	x86_64	4.18.0-305.el8.x86_64	✗	✗	✓	Primary	✓	✓	✓	✓	✓	12.5
RHEL/CentOS 8.5	aarch64	4.18.0-348.el8.aarch64	✗	✗	✓	Primary	✓	✓	✗	✓	✓	12.5
	x86_64	4.18.0-348.el8.x86_64	✗	✗	✓	Primary	✓	✓	✓	✓	✓	12.5
RHEL/Rocky 8.6	aarch64	aarch64.18.0-372.41.1.el8_6.aarch64	✗	✗	✓	Primary	✓	✓	✗	✓	✓	12.5
	x86_64	4.18.0-372.41.1.el8_6.x86_64	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
RHEL/Rocky 8.7	aarch64	4.18.0-425.14.1.el8_7.aarch64	✗	✗	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86_64	4.18.0-425.14.1.el8_7.x86_64	✗	✗	✓	Primary	✓	✗	✓	✓	✓	12.5

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
RHEL/Rocky 8.8	aarch64	4.18.0-477.10.1.el8_8.aarch64	✓	✓	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86	4.18.0-477.10.1.el8_8.x86_64	✓	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 8.9	aarch64	4.18.0-513.5.1.el8_9.aarch64	✓	✓	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86	4.18.0-513.5.1.el8_9.x86_64	✓	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 8.10	aarch64	4.18.0-553.el8_10.aarch64	✓	✓	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86	4.18.0-553.el8_10.x86_64	✓	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 9.0	aarch64	5.14.0-70.46.1.el9_0.aarch64	✗	✗	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86	5.14.0-70.46.1.el9_0.x86_64	✗	✗	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 9.1	aarch64	5.14.0-162.19.1.el9_1.aarch64	✗	✗	✓	Primary	✓	✗	✗	✓	✓	12.5

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			✓	✓	✓							
	x86	5.14.0-162.19.1.el9_1.x86_64	✓	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 9.2	aarch64	5.14.0-284.11.1.el9_2.aarch64	✗	✗	✓	Primary	✓	✗	✗	✓	✓	12.5
	x86	5.14.0-284.11.1.el9_2.x86_64	✗	✗	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 9.3	aarch64	5.14.0-362.8.1.el9_3.aarch64	✗	✗	✓	Primary	✓	✗	✓	✓	✓	12.5
	x86	5.14.0-362.8.1.el9_3.x86_64	✗	✗	✓	Primary	✓	✗	✓	✓	✓	12.5
RHEL/Rocky 9.4	aarch64	5.14.0-427.13.1.el9_4.aarch64	✗	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
	x86	5.14.0-427.13.1.el9_4.x86_64	✗	✓	✓	Primary	✓	✗	✓	✓	✓	12.5
SLES 15 SP2	aarch64	5.3.18-22-default	✗	✗	✓	Primary	✓	✓	✗	✓	✗	✗
	x86	5.3.18-22-default	✗	✗	✓	Primary	✓	✓	✓	✓	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
			✓	✗	✗							
SLES 15 SP3	armch64	5.3.18-57-default	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86	5.3.18-57-default	✗	✗	✓	Primary	✓	✗	✓	✓	✗	✗
SLES 15 SP4	armch64	5.14.21-150400.22-default	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86	5.14.21-150400.22-default	✗	✗	✓	Primary	✓	✗	✓	✓	✗	✗
SLES 15 SP5	armch64	5.14.21-150500.53-default	✗	✗	✓	Primary	✓	✗	✗	✓	✗	✗
	x86	5.14.21-150500.53-default	✗	✗	✓	Primary	✓	✗	✓	✓	✗	✗
SLES 15 SP6	x86	6.4.0-150600.21-default	✗	✗	✓	Primary	✓	✗	✓	✓	✗	✗
TencentOS 3.3	armch64	5.4.119-19.0009.39	✗	✗	✓	Primary	✗	✗	✗	✓	✗	✗
	x86	5.4.119-19.0009.39	✗	✗	✓	Primary	✗	✗	✗	✓	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
Ubuntu 20.04	armch64	5.4.0-26-generic	✗	✗	✓	Primary	✓	✓	✗	✓	✓	12.5
	x86	5.4.0-26-generic	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
Ubuntu 22.04	armch64	5.15.0-25-generic	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
	x86	5.15.0-25-generic	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
Ubuntu 24.04	armch64	6.6.0-14-generic	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
	x86	6.6.0-14-generic	✓	✓	✓	Primary	✓	✓	✓	✓	✓	12.5
UOS 20.10 60	armch64	5.10.0-46.uel20.armch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	5.10.0-46.uel20.x86_64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
UOS 20.10 60a	armch64	5.10.0-46.uelc20.armch64	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗
	x86	5.10.0-46.uelc20.x	✗	✗	✓	Primary	✗	✗	✗	✗	✗	✗

Operating System	Architecture	Default Kernel Version (Primary)/ Tested with Kernel Version (Community)	Supported DOCA Profile			OS Support Model	ASAP ² OVS-Kernel SR-IOV	ASAP ² OVS-DPDK SR-IOV	NFS-over-RDMA	NVMe	GPUDirect Storage (GDS)	UCX-CUDA Version
		86_64										

DOCA-OFED Version Interoperability

This section reflects which versions were tested and verified for multi-version environments (i.e., environments with more than one doca-ofed version on host servers).

Target Version	Versions Verified for Interoperability
24.07-1.x.x.x July 2024	24.04-0.7.0.0 - DOCA-OFED Profile
	5.8-5.1.1.2 LTS

BF-Bundle (BFB) Version Upgrade/Downgrade

The following table provides a matrix for the supported upgrade/downgrade of BFBs across different versions.

Version	Upgrade to	Downgrade to
1.5.0	2.0.2; 2.2.0; 1.5.1; 1.5.2; 1.5.3	1.4.0; 1.3.0
1.5.1	1.5.2	1.5.0
1.5.2	1.5.3	1.5.1; 1.5.0
1.5.3	N/A	1.5.2; 1.5.0
2.0.2	2.2.0; 2.5.0	1.5.0; 1.4.0
2.2.0	2.5.0; 2.6.0	N/A

Version	Upgrade to	Downgrade to
2.2.1	2.5.0; 2.6.0	N/A
2.5.0	2.5.1; 2.6.0	2.2.1 for BlueField-3; 2.2.0 for BlueField-2
2.5.1	2.5.2	2.5.0
2.5.2	N/A	2.5.1; 2.5.0
2.6.0	2.7.0	2.5.0; 2.2.1 for BlueField-3; 2.2.0 for BlueField-2
2.7.0	2.8.0	2.6.0; 2.5.0; 2.2.1 for BlueField-3; 2.2.0 for BlueField-2
2.8.0	N/A	2.7.0; 2.6.0; 2.5.0

Supported DOCA Version Upgrade Using Standard Linux Tools on BlueField

Version	Upgrade to
2.5.0	2.5.1; 2.6.0; 2.7.0; 2.8.0
2.5.1	2.5.2
2.5.2	N/A
2.6.0	2.7.0; 2.8.0
2.7.0	2.8.0

API Changes

Note

The old DOCA Comm Channel API will be deprecated in DOCA 2.9.0.

Library	Change Description
doca_comc h	<ul style="list-style-type: none"> • Changed features <ul style="list-style-type: none"> ◦ API function name changes ◦ API function parameter and return value changes
doca_dma	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ Enable exporting DMA to GPU
doca_dpa	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ Add multi-GVMI support (i.e., run DOCA DPA RDMA on VF while DOCA DPA created on PF)
doca_com mon	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ Bitfield support ◦ Expandable <code>doca_buf_inventory</code> ◦ Batching support (group tasks and flash explicitly to hardware) ◦ Set <code>doca_pe</code> (progress-engine) affinity • Changed features <ul style="list-style-type: none"> ◦ Imported <code>doca_mmap</code> (to DPU) can be exported to (remote) RDMA
doca_comp ress	<ul style="list-style-type: none"> • Removed features <ul style="list-style-type: none"> ◦ Decompress LZ4
doca_eth	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ Ability to extend (i.e., increase) number of allocated tasks ◦ Control notification moderation (once in <code>n</code> events or time) • Changed features <ul style="list-style-type: none"> ◦ Parameter order in: <code>doca_eth_rxq_task_recv_allocate_init</code>
doca_gpun etio	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ Support <code>doca_buf</code> on GPU (<code>doca_gpu_buf</code>) ◦ Support dma operations GPU DPU/host • Changed Features <ul style="list-style-type: none"> ◦ RDMA API changes
doca_pcc	<ul style="list-style-type: none"> • Added features <ul style="list-style-type: none"> ◦ More debug/dump APIs ◦ Performance enhancements (e.g., inline functions)

Library	Change Description
	<ul style="list-style-type: none"> • Changed features <ul style="list-style-type: none"> ◦ Structure of cc_event – Added support for future hardware (placeholder)

Device Definition

The supported adapter cards are specified as follows:

Supported Cards	Description
All HCAs	Supported in the following adapter cards unless specifically stated otherwise: ConnectX-4/ConnectX-4 Lx/ConnectX-5/ConnectX-6/ConnectX-6 Dx/ConnectX-6 Lx/ConnectX-7/BlueField-2/BlueField-3
ConnectX-6 Dx and above	Supported in the following adapter cards unless specifically stated otherwise: ConnectX-6 Dx/ConnectX-6 Lx/ConnectX-7/BlueField-2/BlueField-3
ConnectX-6 and above	Supported in the following adapter cards unless specifically stated otherwise: ConnectX-6/ConnectX-6 Dx/ConnectX-6 Lx/ConnectX-7/BlueField-2/BlueField-3
ConnectX-5 and above	Supported in the following adapter cards unless specifically stated otherwise: ConnectX-5/ConnectX-6/ConnectX-6 Dx/ConnectX-6 Lx/ConnectX-7/BlueField-2/BlueField-3
ConnectX-4 and above	Supported in the following adapter cards unless specifically stated otherwise: ConnectX-4/ConnectX-4 Lx/ConnectX-5/ConnectX-6/ConnectX-6 Dx/ConnectX-6 Lx/ConnectX-7/BlueField-2/BlueField-3

Unsupported Functionalities/Features/NICs

The following are the unsupported functionalities/features/NICs in the current version:

- RDMA experimental verbs library (mInx_lib)

- CIFS (Common Internet File System) module installation
- Relational Database Service (RDS)
- mthca InfiniBand driver
- Ethernet iPoIB (eIPoIB)
- InfiniBand Connected transport service
- IPsec over bond for crypto offload

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