Red Hat Enterprise Linux (RHEL) 7.4-ALT Driver Release Notes

RHEL 7.4-ALT

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1 Overview

These are the release notes of Red Hat Enterprise Linux (RHEL) 7.4-ALT Driver for Arm and PPC architectures tested on IBM-Power8 and Cavium-Arm.

This document provides instructions on drivers for Mellanox Technologies ConnectX® based adapter cards with Red Hat Enterprise Linux (RHEL) 7.4-ALT Inbox Driver environment.

This version supports the following uplinks to servers:

Table 1 - Supported Uplinks to Servers

Uplink/HCAs	Uplink Speed	Supported Driver
ConnectX®-5	• InfiniBand: SDR, QDR, FDR, FDR10, EDR • Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, 50GigE, 56GigE[a], and 100GigE	mlx5_core (includes the ETH functionality as well), mlx5_ib
ConnectX®-4	• Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, 50GigE, 56GigE[a], and 100GigE	mlx5_core (includes the ETH functionality as well), mlx5_ib
ConnectX®-4 Lx	• Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, and 50GigE	mlx5_core (includes the ETH functionality as well)
Connect-IB®	• InfiniBand: SDR, QDR, FDR10, FDR	mlx5_core, mlx5_ib
ConnectX®-3/ ConnectX®-3 Pro	• InfiniBand: SDR, QDR, FDR10, FDR • Ethernet: 10GigE, 40GigE and 56GigE[a]	mlx4_core, mlx4_en, mlx4_ib
ConnectX®-2	• InfiniBand: SDR, DDR • Ethernet: 10GigE, 20GigE	mlx4_core, mlx4_en, mlx4_ib

a. 56GbE is a Mellanox propriety link speed and can be achieved while connecting a Mellanox adapter cards to Mellanox SX10XX switch series or connecting a Mellanox adapter card to another Mellanox adapter card.

1.1 Supported HCAs Firmware Versions

Red Hat Enterprise Linux (RHEL) 7.4 Driver RHEL 7.4-ALT supports the following Mellanox network adapter cards firmware versions:

Table 2 - Supported HCAs Firmware Versions

HCA	Recommended Firmware Rev.	Additional Firmware Rev. Supported
Connect-IB®	10.16.1020	N/A
ConnectX®-5	16.21.1000	N/A
ConnectX®-4 Lx	14.21.1000	N/A
ConnectX®-4	12.21.1000	N/A
ConnectX®-3 Pro	2.42.5000	N/A
ConnectX®-3	2.42.5000	N/A
ConnectX®-2	2.9.1000	N/A

1.2 SR-IOV Support

Table 3 - SR-IOV Support

Driver	Support
mlx4_core, mlx4_en, mlx4_ib	Technical Preview[a]
mlx5_core (includes ETH functionality), mlx5_ib	Technical Preview[a]

a. Technical Preview is not fully supported production feature.

1.3 RoCE Support

Table 4 - RoCE Support

Driver	Support
mlx4 - RoCE v1/v2	Yes
mlx5 - RoCE v1/v2	Yes

1.4 VXLAN Support

Table 5 - VXLAN Support

Driver	Support
mlx4 - VXLAN offload	Yes
mlx5 - VXLAN offload	Yes (without RSS)

1.5 Open vSwitch Hardware Offloads Support

Table 6 - Open vSwitch Hardware Offloads Support

Driver	Support
mlx4	No
mlx5	Technical Preview[a]

a. Technical Preview is not fully supported production feature.

2 Changes and New Features

Table 7 - Changes and New Features

Driver	Feature/Change	Description
mlx5	On Demand Paging	Added On-Demand-Paging (ODP), a technique to alleviate much of the shortcomings of memory registration.
	Support 4K User Access Regions (UAR)	Allows a more efficient use of device memory mapped I/O as UAR (User Access Region) Each process requires an area from the device memory in order to trigger operations on the device such as sending a message to the wire. This area is taken from the memory covered by BAR0-1 of the device. This kind of memory is called UAR. This feature will make more efficient use of this area allowing more processes to run concurrently. The effect is especially significant on PPC machines since they use 64KB for a system page.
	SR-IOV Bandwidth Share for Ethernet/ RoCE	Added the ability to guarantee the minimum rate of a certain VF in SR-IOV mode.

3 Known Issues

The following table describes known issues in this release and possible workarounds..

Table 8 - Known Issues

Internal Ref.	Bugzilla Ref.	Description
1110158	-	**Description:** NVMe IO may fail due to a block layer merge BIOS that does not comply to the virtual boundary.
		Workaround: Disable all merge tries, run "`echo 2 > /sys/block/<dev>/queue/nomerges`".
		Keywords: mlx5, NVMe
1081902	1468598	**Description:** When using a large block size (over 1G) iSER, memreg may fail and cause an IO error.
		Workaround: N/A
		Keywords: mlx5, iSER