

# VMware Deliverable Release Notes



This document does not apply to HPE Superdome servers. For information on HPE Superdome, see the following links:

[HPE Integrity Superdome X](#)  
[HPE Superdome Flex](#)

Information on HPE Synergy supported VMware ESXi OS releases, HPE ESXi Custom Images and HPE Synergy Custom SPPs is available at:

[VMware OS Support Tool for HPE Synergy](#)

Information on HPE Synergy Software Releases is available at:

[HPE Synergy Software Releases - Overview](#)

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## Gen10 Patch Bundle 1 Supplement version 2022.09.01.01 Release Notes for VMware ESXi 7.0

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### Driver - Network

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Intel icen Driver for VMware vSphere 7.0

Version: 2022.11.00 **(Optional)**

Filename: cp054436.compsig; cp054436.zip

### Important Note!

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibsdepot.hpe.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *Intel Firmware Package For E810 Ethernet Adapter*, version 3.20 or later, for use with this driver.

### Enhancements

- This product enhances to Collect of FW debug data in different scenarios
- This product now supports HPE ProLiant Gen11 servers

### Supported Devices and Features

This product supports the following network adapters:

- Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
- Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE
- Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE
- Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
- Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- Intel E810-2CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
- Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE

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Mellanox ConnectX-4, ConnectX-5 and ConnectX-6 "nmlx5\_en" Driver Component for VMware ESXi 7.0 Update 2 and Update 3

Version: 2021.04.21 (D) **(Recommended)**

Filename: cp054406.compsig; cp054406.zip

### Important Note!

**Important: Version 4.21.71.1 supports VMware ESXi 7.0 Update 2 and Update 3 only.**

### Known Issues with driver version 4.21.71.101:

- A mismatch between the uplink and the VF MTU values may result in CQE with error.  
Workaround: Align the uplink and the VF MTU values.
- Enabling sriov\_mc\_isolation module parameter may result in vmknic and emulated NICs multicast and IPv6 traffic loss.  
Workaround: Unset or set the module parameter to 0.
- RDMA is not supported in the Hypervisor with ENS (Enhanced Network Stack) model 2.
- Setting the "Allow Guest MTU Change" option in vSphere Client is currently not functional. Although guest MTU changes in SR-IOV are allowed, they do not affect the port's MTU and the guest's MTU remains the same as the PF MTU.
- ECN (Explicit congestion notification) statistic counters accumulatorsPeriod and ecnMarkedRocePackets display wrong values and cannot be cleared.
- ECN tunable parameter initialAlphaValue for the Reaction Point protocol cannot be modified.
- Card's speed remains zero after port goes down and reboot is performed.
- RoCE traffic may fail after vMotion when using namespace.
- Legacy SR-IOV is not supported with Model 1.

- When in ENS mode, changing the scheduler to HCLK, may cause traffic loss.
- The 'esxcli mellanox uplink link info -u <vmnic\_name>' command reports the 'Auto negotiation' capability always as 'true'.
- SMP MADs (ibnetdiscover, sminfo, iblinkinfo, smpdump, ibqueryerr, ibdiagnet and smpquery) are not supported on the VFs.
- Although the max\_vfs module parameter range is "0-128", due to firmware limitations, the following are the supported VFs per single port devices:
  - ConnectX-4 / ConnectX-5: up to 127

## Fixes

### Fixes included in driver version 4.21.71.101:

- Fixed a compatibility issue with VMware Update Manager as it wouldn't accept a bundle with metadata xml with old versioning scheme. The metadata xml now contains the new versioning scheme.

## Enhancements

### The following changes have been made in sub-version 2021.04.21(D):

- Product rebuilt to have the new SHA 384 signature.
- Removed support for the following servers:
  - Blade servers BLxxxx Gen9/Gen10 series.
- Included support for Gen11 Servers.

### New features and changes in driver version 4.21.71.101:

- Added support for the following features:
  - vSan over RDMA.
  - Receive Side Scaling (RSS) for ENS model 0.
  - ENS FPO Model 1 with Rx path flow lookup offloaded (ConnectX5 onwards)
  - ENS FPO Model 1 with Tx path partial action execution offloaded (ConnectX5 onwards)
  - ENS FPO Model 2 with SR-IOV as passthrough technology (ConnectX5 onwards)
  - 200GbE link speed.
  - ConnectX-6 Lx devices.
  - Data Center Bridging Capability Exchange (DCBX) protocol with hardware offload.
  - sriov\_mc\_isolation module parameter to isolate multicast traffic to SR-IOV interfaces. Default value is OFF.
  - ens\_fallback\_model to set the default fallback mode when the option to query ENS model from the OS is not supported. Default to Model 1.
- Scaled support for up to 10K connections over RDMA networks.
- Updated the kernel parameter "supported\_num\_ports" default value to 1 to lower memory constraints. Note: The user must set a value corresponding to the amount of ports installed in the system.

## Supported Devices and Features

HPE Part Number	Device Name	PSID
P24837-B21	HPE Ethernet 10/25Gb 2-port 642SFP28 Adapter	HPE0000000054
P11338-B21	HPE Ethernet 10Gb 2-port 548SFP+ Adapter	HP_1200111023
825110-B21	HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	HP_2180110032
825111-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	HP_2190110032
872726-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	HPE0000000009
879482-B21	HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter	HPE0000000022
817749-B21	HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter	HP_2690110034
817753-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter	HP_2420110034
P21927-B21	HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	MT_0000000417
P10112-B21	Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	MT_0000000241
P13188-B21	Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	MT_0000000416
P11341-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4621A-ACAB OCP3 Adapter	MT_0000000238
P21930-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4121A-XCHT Adapter	MT_0000000414
874253-B21	HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	HPE0000000014
P25960-B21	Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	MT_0000000437
P06154-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe3 x16 MCX653105A-HDAT Adapter	HPE0000000034
P06250-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter	HPE0000000035
P06251-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter	HPE0000000036

P23664-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter	MT_0000000451
P23665-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter	MT_0000000452
P23666-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter	MT_0000000453
P10180-B21	Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE	MT_0000000435
P31246-B21	HPE Ethernet 100Gb 1-port QSFP28 PCIe3 x16 MCX515A-CCAT Adapter	MT_0000000591
P31323-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter	MT_0000000592
P31348-B21	HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter	MT_0000000593
P31324-B21	HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter	MT_0000000594
P42041-B21	Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	MT_0000000551
P42044-B21	Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	MT_0000000575

## Driver - Storage Controller

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HPE MR416i-a, MR416i-p, MR216i-a, MR216i-p Gen10 Plus controller (64-bit) Driver for vSphere 7.0 (Driver Component)

Version: 2022.11.01 **(Recommended)**

Filename: cp051735.compsig; cp051735.zip

### Important Note!

This component is intended to be used by HPE applications. It is a zip that contains the same driver deliverable available from the vmware.com and the HPE vibsdepot.hpe.com webpages, plus an HPE specific CPXXXX.xml file.

### Enhancements

New version with 7.722.02.00.

HPE MR416i-a, MR416i-p, MR216i-a, MR216i-p, MR416i-o controller (64-bit) Driver for vSphere 7.0

Version: 7.722.02.00 **(Recommended)**

Filename: Broadcom-lsi-mr3\_7.722.02.00-10EM.700.1.0.15843807\_20225841.zip

### Enhancements

## Firmware - Network

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Mellanox Firmware Package (FWPKG) - Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE

Version: 26.34.1002 **(Recommended)**

Filename: 26\_34\_1002-MCX631102AS-ADA\_Ax.pldm.fwpkg

### Important Note!

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A list of known issues with this release is available

at: <https://docs.nvidia.com/networking/display/ConnectX6LxFirmwarev26331048/Known+Issues>

### Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### Fixes

The following issues have been fixed in version 26.34.1002:

- An issue where set\_flow\_table\_entry failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to hang.
- An issue where vPort counters had wrong values.
- An issue where firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

## Enhancements

### New Features and Changes in Version 26.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added support for PPCC register with bulk operations, MAD for algorithm configuration and tunable parameters.
- Added support for programmable counters for PCC via PPCC register and MAD.
- Added Programmable Congestion Control (PCC) support. Note: User programmability is currently not supported.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.
- Enabled Multi-Host RX Rate-limiter configuration via the QEEC mlxreg and the max\_shaper\_rate field.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P42044-B21	Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	MT_0000000575

Mellanox Firmware Package (FWPKG) - Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE

Version: 26.34.1002 **(Recommended)**

Filename: 26\_34\_1002-MCX631432AS-ADA\_Ax.pldm.fwpkg

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A list of known issues with this release is available

at: <https://docs.nvidia.com/networking/display/ConnectX6LxFirmwarev26331048/Known+Issues>

## Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## Fixes

### The following issues have been fixed in version 26.34.1002:

- An issue where set\_flow\_table\_entry failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to hang.
- An issue where vPort counters had wrong values.
- An issue where firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

## Enhancements

### New Features and Changes in Version 26.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added support for PPCC register with bulk operations, MAD for algorithm configuration and tunable parameters.
- Added support for programmable counters for PCC via PPCC register and MAD.
- Added Programmable Congestion Control (PCC) support. Note: User programmability is currently not supported.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.
- Enabled Multi-Host RX Rate-limiter configuration via the QEEC mlxreg and the max\_shaper\_rate field.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P42041-B21	Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	MT_0000000551

Mellanox Firmware Package (FWPKG) for HPE Ethernet 100Gb 1-port QSFP28 PCIe3 x16 MCX515A-CCAT Adapter : HPE part numbers P31246-B21 and P31246-H21  
Version: 16.34.1002 (**Recommended**)  
Filename: 16\_34\_1002-MCX515A-CCA\_HPE\_Ax.pldm.fwpkg

### **Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX5Firmwarev16341002/Known+Issues>

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 16.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

**The following issues have been fixed in version 16.34.1002:**

- o "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- o A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to hang.
- o When all traffic applications sharing the same combination of <function, priority, side> were rate limited (for example by congestion control), this limit was enforced on other applications with different combinations of <function, priority, side> under the same VL. For example, requestor flows (RDMA-write) were limited to rate X, however, this rate was also enforced on a QP sending RDMAread responses. This firmware version prevents rate limit enforcement on traffic applications which should not be limited.
- o Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

### **Enhancements**

**Important :** Security Hardening Enhancements - This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this version to improve the firmware security and reliability of your device.

**New features and changes included in version 16.34.1002:**

- o Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.

### **Supported Devices and Features**

This software package contains the following firmware versions:

Mellanox Ethernet Only Adapters	Firmware Version	PSID
HPE Ethernet 100Gb 1-port QSFP28 PCIe3 x16 MCX515A-CCAT Adapter(P31246-B21 and P31246-H21)	16.34.1002	MT_0000000591

### Important Note!

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

### Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### Fixes

The following issues have been fixed in version 20.34.1002:

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and OP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

### Enhancements

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

New features and changes included in version 20.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

### Supported Devices and Features

This software package contains the following firmware versions:

Mellanox InfiniBand Adapter	Firmware Version	PSID
HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter (P23664-B21 and P23664-H21)	20.34.1002	MT_0000000451

: HPE part numbers P31323-B21 and P31323-H21  
Version: 20.34.1002 **(Recommended)**  
Filename: 20\_34\_1002-MCX653435A-HDA\_HPE\_Ax.pldm.fwpkg

### **Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

**The following issues have been fixed in version 20.34.1002:**

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

### **Enhancements**

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

**New features and changes included in version 20.34.1002:**

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

### **Supported Devices and Features**

This software package contains the following firmware versions:

<b>Mellanox InfiniBand Adapter</b>	<b>Firmware Version</b>	<b>PSID</b>
HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter (P31323-B21 and P31323-H21)	20.34.1002	MT_0000000592

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Mellanox Firmware Package (FWPKG) for HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter : HPE part numbers P31324-B21 and P31324-H21  
Version: 20.34.1002 **(Recommended)**  
Filename: 20\_34\_1002-MCX653106A-HDA\_HPE\_Ax.pldm.fwpkg



## **Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

**ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.**

<b>Port #2 - InfiniBand</b>				
<b>Port #1 – Ethernet</b>	<b>HDR/HDR100</b>	<b>EDR</b>	<b>FDR</b>	<b>QDR</b>
<b>200GbE/50GbE</b>	supported	not supported	not supported	supported
<b>100GbE/25GbE</b>	supported	not supported	not supported	supported
<b>40GbE/10GbE</b>	supported	not supported	not supported	supported
<b>1GbE</b>	supported	not supported	not supported	supported

<b>Port #2 - Ethernet</b>				
<b>Port #1 - InfiniBand</b>	<b>200GbE/50GbE</b>	<b>100GbE/25GbE</b>	<b>40GbE/10GbE</b>	<b>1GbE</b>
<b>HDR / HDR100</b>	supported	supported	not supported	supported
<b>EDR</b>	supported	supported	not supported	supported
<b>FDR</b>	not supported	not supported	not supported	not supported
<b>QDR/SDR</b>	supported	supported	not supported	supported

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

## **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## **Fixes**

**The following issues have been fixed in version 20.34.1002:**

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

## **Enhancements**

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

**New features and changes included in version 20.34.1002:**

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

**Supported Devices and Features**

This software package contains the following firmware versions:

Mellanox InfiniBand Adapter	Firmware Version	PSID
HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter(P31324-B21 and P31324-H21)	20.34.1002	MT_0000000594

Mellanox Firmware Package (FWPKG) for HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter : HPE part numbers P31348-B21 and P31348-H21  
 Version: 20.34.1002 **(Recommended)**  
 Filename: 20\_34\_1002-MCX653436A-HDA\_HPE\_Ax.pldm.fwpkg

**Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

**ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.**

Port #2 - InfiniBand				
Port #1 – Ethernet	HDR/HDR100	EDR	FDR	QDR
200GbE/50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	200GbE/50GbE	100GbE/25GbE	40GbE/10GbE	1GbE
HDR / HDR100	supported	supported	not supported	supported
EDR	supported	supported	not supported	supported
FDR	not supported	not supported	not supported	not supported
QDR/SDR	supported	supported	not supported	supported

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A list of known issues with this release is available

at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

## **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## **Fixes**

**The following issues have been fixed in version 20.34.1002:**

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

## **Enhancements**

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

**New features and changes included in version 20.34.1002:**

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

## **Supported Devices and Features**

This software package contains the following firmware versions:

<b>Mellanox InfiniBand Adapter</b>	<b>Firmware Version</b>	<b>PSID</b>
HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter (P31348-B21 and P31348-H21)	20.34.1002	MT_0000000593

Mellanox Firmware Package (FWPKG) for HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter :

HPE part numbers P23665-B21 and P23665-H21

Version: 20.34.1002 (**Recommended**)

Filename: 20\_34\_1002-MCX653105A-ECA\_HPE\_Ax.pldm.fwpkg

## **Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

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software or documents that you download from <http://www.nvidia.com/>, except that HPE may provide a limited warranty for NVIDIA software in accordance with the terms and conditions of your purchase of the HPE product or solution.

A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

**Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

**Fixes**

The following issues have been fixed in version 20.34.1002:

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

**Enhancements**

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

New features and changes included in version 20.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

**Supported Devices and Features**

This software package contains the following firmware versions:

Mellanox InfiniBand Adapter	Firmware Version	PSID
HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter (P23665-B21 and P23665-H21)	20.34.1002	MT_0000000452

Mellanox Firmware Package (FWPKG) for HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter : HPE part numbers P23666-B21 and P23666-H21  
 Version: 20.34.1002 **(Recommended)**  
 Filename: 20\_34\_1002-MCX653106A-ECA\_HPE\_Ax.pldm.fwpgk

**Important Note!**

For PLDM enabled VPI (Virtual Protocol Interconnect) adapters supporting both InfiniBand mode and Ethernet modes, every firmware version is made available in two different formats at HPE.com:

1. HPE signed PLDM Firmware Package (.FWPKG filename extension) updatable via iLO.
2. Firmware binary (.bin filename extension) updatable via mstflint utility from the Operating System.

Choose the appropriate firmware file format based on your preference and what suits your environment.

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 – Ethernet	HDR/HDR100	EDR	FDR	QDR
50GbE	supported	not supported	not supported	supported

<b>100GbE/25GbE</b>	supported	not supported	not supported	supported
<b>40GbE/10GbE</b>	supported	not supported	not supported	supported
<b>1GbE</b>	supported	not supported	not supported	supported

<b>Port #2 - Ethernet</b>				
<b>Port #1 - InfiniBand</b>	<b>50GbE</b>	<b>100GbE/25GbE</b>	<b>40GbE/10GbE</b>	<b>1GbE</b>
<b>HDR / HDR100</b>	supported	supported	not supported	supported
<b>EDR</b>	supported	supported	not supported	supported
<b>FDR</b>	not supported	not supported	not supported	not supported
<b>QDR/SDR</b>	supported	supported	not supported	supported

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6Firmwarev20341002/Known+Issues>

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

**The following issues have been fixed in version 20.34.1002:**

- "set\_flow\_table\_entry" failed when aso\_flow\_meter action was used.
- A race condition occurred between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to get into an unresponsive state.
- Firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

### **Enhancements**

Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. HPE recommends upgrading your device's firmware to this release to improve the firmware security and reliability of your device.

**New features and changes included in version 20.34.1002:**

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added Queue Counters Allocation capability which allows privileged users to allocate queue counters. With this new feature, the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Added support for InfiniBand MAD packets capturing in RX RDMA Steering table.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

### **Supported Devices and Features**

This software package contains the following firmware versions:

	<b>Firmware</b>
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Mellanox InfiniBand Adapter	Version	PSID
HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter (P23666-B21 and P23666-H21)	20.34.1002	MT_0000000453

Mellanox Firmware Package (FWPKG) for Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE  
Version: 22.34.1002 **(Recommended)**  
Filename: 22\_34\_1002-MCX623105AS-VDA\_Ax.pldm.fwpkg

**Important Note!**

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6DxFirmwarev22341002/Known+Issues>

**Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 22.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

**Fixes**

The following issues have been fixed in version 22.34.1002:

- An issue that caused the destroy\_match\_definer object command to fail after dumping it using resource\_dump.
- An issue where set\_flow\_table\_entry failed when aso\_flow\_meter action was used.
- An issue where firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

**Enhancements**

New features and changes included in version 22.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added a 22 nanosecond of propagation delay to the cable delay of the PPS signal when using PPS out.
- Added support for PPCC register with bulk operations, MAD for algorithm configuration and tunable parameters.
- Added support for programmable counters for PCC via PPCC register and MAD.
- Added support for RX multi-host rate limit using an enabler script.
- A new capability that allows privileged users to allocate queue counters. In this new feature the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Enabled Multi-Host RX Rate-limiter configuration via the QEEC mlxreg and the max\_shaper\_rate field.
- Added a new NVconfig parameter "MULTI\_PCI\_RESOURCE\_SHARE" to support modes that allow choosing the utilization of the card's resources on each host in Socket-Direct / Multi host setup.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

**Supported Devices and Features**

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P10180-B21	Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE	MT_0000000435

Mellanox Firmware Package (FWPKG) for Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE  
Version: 22.34.1002 **(Recommended)**  
Filename: 22\_34\_1002-MCX623106AS-CDA\_Ax.pldm.fwpkg

**Important Note!**

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A list of known issues with this release is available at: <https://docs.nvidia.com/networking/display/ConnectX6DxFirmwarev22341002/Known+Issues>

## Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 22.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## Fixes

The following issues have been fixed in version 22.34.1002:

- An issue that caused the destroy\_match\_definer object command to fail after dumping it using resource\_dump.
- An issue where set\_flow\_table\_entry failed when aso\_flow\_meter action was used.
- An issue where firmware update failed or timed out when multiple adapters of the same type were present on a system. This was fixed by adding "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.

## Enhancements

New features and changes included in version 22.34.1002:

- Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
- Added a 22 nanosecond of propagation delay to the cable delay of the PPS signal when using PPS out.
- Added support for PPCC register with bulk operations, MAD for algorithm configuration and tunable parameters.
- Added support for programmable counters for PCC via PPCC register and MAD.
- Added support for RX multi-host rate limit using an enabler script.
- A new capability that allows privileged users to allocate queue counters. In this new feature the get\_max\_qp\_cnt\_cur\_cap() returns a valid value when the UID is with UCTX\_CAP\_INTERNAL\_DEVICE\_RESOURCES, otherwise it returns 0.
- Enabled Multi-Host RX Rate-limiter configuration via the QEEC mlxreg and the max\_shaper\_rate field.
- Added a new NVconfig parameter "MULTI\_PCI\_RESOURCE\_SHARE" to support modes that allow choosing the utilization of the card's resources on each host in Socket-Direct / Multi host setup.
- Added 50 Usec delay during PML1 exit to avoid any PCIe replay timer timeout.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P25960-B21	Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	MT_0000000437

## Firmware - Storage Controller

Firmware Package - HPE Gen10 Plus Boot Controller NS204i-p, NS204i-d, NS204i-t, NS204i-r

Version: 1.2.14.1004 (**Recommended**)

Filename: HPE\_NS204i\_Gen10P\_1.2.14.1004.fwpkg

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## Important Note!

This firmware version is to be used on NS204i controllers.

Use iLO to flash HPE\_NS204i\_Gen10P\_PLDM\_xxxx.fwpkg above 1.0.14.1055.; continuously HPE offers PLDM Type5 FW flash through .fwpkg file only.

Please find the minimum version required (1.0.14.1055) in below links:

- Windows <https://support.hpe.com/hpesc/public/swd/detail?swItemId=MTX-1b2c98e9d2594b9db679e89bbe#tab-history>
- Linux <https://support.hpe.com/hpesc/public/swd/detail?swItemId=MTX-207ea7e739f048049a66d61008#tab-history>
- VMware [https://support.hpe.com/hpesc/public/swd/detail?swItemId=MTX\\_141038fe565b457ca9fe4d28de#tab-history](https://support.hpe.com/hpesc/public/swd/detail?swItemId=MTX_141038fe565b457ca9fe4d28de#tab-history)

## Enhancements

1. Thermal warning threshold modification;
2. IML optimization;
3. Error handling improvement when receive unsupported commands.

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Firmware Package - HPE MR216i-a Gen10 Plus Tri Mode Controller  
Version: 52.22.3-4650 (**Recommended**)  
Filename: HPE\_MR216i-a\_Gen10\_52.22.3-4650.fwpkg

**Important Note!**

**This firmware version to be used on HPE MR216i-a Gen10 Plus Controller.**

**Enhancements**

New version with 52.22.3-4650

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Firmware Package - HPE MR216i-p Gen10 Plus Tri Mode Controller with Gen10 and Gen10 Plus servers  
Version: 52.22.3-4650 (B) (**Recommended**)  
Filename: HPE\_MR216i-p\_Gen10\_52.22.3-4650\_B.fwpkg

**Important Note!**

**This firmware version to be used on HPE MR216i-p Gen10 Plus Controller.**

**Enhancements**

New version with 52.22.3-4650

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Firmware Package - HPE MR416i-a Gen10 Plus Tri Mode Controller  
Version: 52.22.3-4650 (**Recommended**)  
Filename: HPE\_MR416i-a\_Gen10\_52.22.3-4650.fwpkg

**Important Note!**

**This firmware version to be used on HPE MR416i-a Gen10 Plus Controller.**

**Enhancements**

New version with 52.22.3-4650

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Firmware Package - HPE MR416i-p Gen10 Plus Tri Mode Controller with Gen10 and Gen10 Plus servers  
Version: 52.22.3-4650 (B) (**Recommended**)  
Filename: HPE\_MR416i-p\_Gen10\_52.22.3-4650\_B.fwpkg

**Important Note!**

**This firmware version to be used on HPE MR416i-p Gen10 Plus Controller.**

**Enhancements**

New version with 52.22.3-4650

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Online ROM Flash Component for VMware ESXi - HPE 12Gb/s SAS Expander Firmware for HPE Smart Array Controllers and HPE HBA Controllers  
Version: 5.14 (C) (**Recommended**)  
Filename: CP054243.compsig; CP054243.zip



### **Important Note!**

- **Do NOT downgrade FW to previous version if your current expander is 5.10; please upgrade to 5.14 immediately.**

### **Enhancements**

Support ESXi8.0

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Online ROM Flash Component for VMware ESXi - HPE Apollo 4200 Backplane Expander Firmware

Version: 1.79 (E) **(Recommended)**

Filename: CP054456.zip; CP054456\_part1.compsig; CP054456\_part2.compsig

### **Important Note!**

- Power cycle / cold reboot is required if firmware is upgraded from version 1.03 or earlier.

### **Enhancements**

Support ESXi8.0

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## **Software - Management**

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HPE Agentless Management Bundle Smart Component on ESXi for Gen10 and Gen10 Plus Servers

Version: 2022.10.01 **(Recommended)**

Filename: cp054557.compsig; cp054557.zip

### **Fixes**

#### **Agentless Management Service**

- Fixed incorrect cpqSePCleDiskHwLocation and multiple missing NVMe drive info in cpqSePCleDisk MIB.
- 

Smart Storage Administrator (SSA) CLI Smart Component for ESXi 7.0 for Gen9/Gen10/Gen10 Plus Controllers

Version: 2022.12.01 **(Recommended)**

Filename: cp054497.compsig; cp054497.zip

### **Enhancements**

New version 6.10.21.0

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## **Software - Storage Controller**

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HPE MegaRAID Storage Administrator StorCLI for VMware7.0 (For Gen10 Plus Controllers)

Version: 2022.10.00 **(Recommended)**

Filename: cp050680.compsig; cp050680.zip

### **Enhancements**

New version with 007.2207.0000.0000

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## **Software - System Management**

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HPE Agentless Management Bundle for ESXi for HPE Gen10 and Gen10 Plus Servers

Version: 701.11.8.6 **(Recommended)**

Filename: amsdComponent\_701.11.8.6.10-1\_20582302.zip

### **Fixes**

#### **Agentless Management Service**

- Fixed incorrect cpqSePCleDiskHwLocation and multiple missing NVMe drive info in cpqSePCleDisk MIB.
- 

Smart Storage Administrator (SSA) CLI for VMware 7.0

Version: 6.10.21.0 **(Recommended)**

Filename: ssacli2-component\_6.10.21.0-7.0.0\_20531641.zip

## **Enhancements**

Initial Build for Vmware

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Get connected

[hpe.com/info/getconnected](https://hpe.com/info/getconnected)

Current HPE driver, support, and security alerts delivered directly to your desktop

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