How-to: Change port type of NVIDIA ConnectX VPI adapter on VMware ESXi 6.x and above.

Created on Jun 4, 2019

Updated on Sep 13, 2021

Introduction

This How To describes how to manage the port type (InfiniBand or Ethernet) of NVIDIA ConnectX® InfiniBand/VPI Cards in VMware ESXi 6.x and above.

References

- InfiniBand Cards - Overview
- NVUDIA Mellanox OFED InfiniBand Driver for VMware® ESXi Server
- NVIDIA Firmware Tools (MFT) Product Page
- Using ESXi Shell in ESXi 5.x, 6.x and 7.x (2004746)

Hardware and Software Requirements

1. A server platform with an adapter card based on one of the following NVIDIA Technologies' **HCA devices**:

    - ConnectX®-5 Single/Dual-Port Adapter supporting 100Gb/s with VPI
    - ConnectX®-6 Dx

2. Installer Privileges: The installation requires **administrator privileges** on the target machine.

3. **Device ID**: For the latest list of device IDs, please visit NVIDIA NETWORKING website.

Port Type Management

NVIDIA ConnectX adapter card may be equipped with one or two ports can be individually configured to work as InfiniBand or Ethernet ports.

The port type depends on the card type. In case of a VPI card, the default type is IB. If you wish to change the port type use the mlxconfig script, is included in NVIDIA Firmware Tools(MFT).

For further information on how to install MFT please use following link - How-to: Install NVIDIA Firmware Tools (MFT) on VMware ESXi 6.7/7.0.

The protocol types are:

- **Port Type 1 = IB**
- **Port Type 2 = Ethernet**

To print the current status of Mellanox devices:

1. **Enable SSH** Access to ESXi server.

2. **Log into ESXi** vSphere Command-Line Interface with root permissions.

3. **Run** the following command:

ESXi Console

```
/opt/mellanox/bin/mst status
MST devices:

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mt4125_pciconf7
```

Related Documents

- How-to: Install NVIDIA Firmware Tools (MFT) on VMware ESXi 6.7 /7.0.
- RDG: RoCE accelerated Apache Spark 2.2 cluster deployment.
- RDG: RoCE accelerated vSphere 6.7 cluster deployment for ML and HPC workloads.
- RDG: VMware NSX-V hardware VTEPs in High-Availability mode on Spectrum switches running Cumulus Linux.
- How-to: Firmware update for NVIDIA ConnectX-5/6 adapter on VMware ESXi 6.5 and above.
- How-to: Change port type of NVIDIA ConnectX VPI adapter on VMware ESXi 6.x and above.
- How-to: NVIDIA ConnectX driver upgrade on VMware ESXi 6.7/7.0 and above.
- How-to: Configure NVIDIA network device in VMDirectPath I/O passthrough mode on VMware ESXi 6.x.
- How-to: Configure NVIDIA ConnectX-5/6 adapter in SR-IOV mode on VMware ESXi 6.7/7.0 and above.
- How-to: Configure RoCEv2 lossless fabric for VMware ESXi 6.5 and above.
- How-to: Configure NVIDIA GPU device in VMDirectPath I/O passthrough mode on VMware ESXi 6.x server.
- QSG: TRex in a few steps using Nvidia ConnectX adapters.
- QSG: Building Docker image with compiled Nvidia Network DPDK PMD.
- How-to: Configure PVRDMA in VMware vSphere 6.5/6.7.
- RDG: Kubernetes Cluster Deployment for ML and HPC Workloads with NVIDIA GPU Virtualization and VMware PVRDMA Technologies.

To use a VPI card as an Ethernet only type card:

1. **Enter Maintenance Mode** the ESXi host.

2. And run:

ESXi Console
`~ /opt/mellanox/bin/mlxconfig -d /dev/mt4125_pciconf7 set LINK_TYPE_P1=2 LINK_TYPE_P2=2`

3. **Restart** a server.

ESXi Console
`~ reboot`

4. **Exit from Maintenance Mode** the ESXi host.

For more information on how to set the port type in ConnectX®-5/ConnectX®-6, please refer to the MFT User Manual (NVIDIA Firmware Tools (MFT) Product Page).

Done!