

Configuring Dell PowerEdge VRTX shared storage for VMware vSphere Environment

A Dell Technical White Paper

Krishnaprasad K

Sreekanth Reddy

Dell Hypervisor Engineering

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Introduction to PowerEdge VRTX

PowerEdge VRTX is a new Modular infrastructure targeted for Remote Office/Back Office (ROBO) installations. PowerEdge VRTX combines existing blade servers (M620 and M520) with new Mezzanine bypasser cards, I/O and shared Storage infrastructure. It supports up to four blade servers (half-height). PowerEdge VRTX also includes an IO module slot, a front LCD panel for convenient chassis management, a KVM port that can be assigned to a server, a DVD drive that can be assigned to a server, redundant power supply units, and fans.

For detailed information on PowerEdge VRTX platform architecture, features, and capabilities, refer to [Dell website](#). VRTX is the first shared IT solution designed specifically for remote and small office environments, with enterprise-class capabilities in a desk-side, space-saving design. It combines servers, shared storage, IO in the form of PCIe slots and networking into a 5U tower (rackable) chassis that is suitable for the small and remote offices it is specifically designed to operate in.



The detailed component description of PowerEdge VRTX is available at [Dell Tech Center](#).

Audience

This paper is intended towards IT administrators who have purchased, or are planning to purchase virtualization infrastructure for a remote office, branch office, small office, or a small business.

Overview

This document is intended to assist end-users in deploying VMware® ESXi on Dell™ PowerEdge™ VRTX server nodes managed by Dell Chassis Management Controller (CMC). This paper details about setting up PowerEdge VRTX for a cluster environment w.r.t VMware ESXi. VRTX combines blade server nodes and shared storage. The blade server nodes supported on VRTX are PowerEdge M620 and PowerEdge M520 at its launch.

The VMware ESXi version supported on the blade server nodes for PowerEdge VRTX is Dell customized version of 5.1 Update1. The process for deploying VMware ESXi on Dell PowerEdge VRTX server nodes is similar to installing the software on other supported Dell PowerEdge servers. Additionally, more detailed instructions for installing ESXi on Dell PowerEdge systems can be found at Dell.com/virtualizationsolutions and within the Dell PowerEdge Deployment Guide for VMware ESXi 5. This paper is divided into two sections of which the first section talks about setting up VRTX shared storage. The second section details about accessing the shared storage to individual blade servers installed with VMware ESXi.

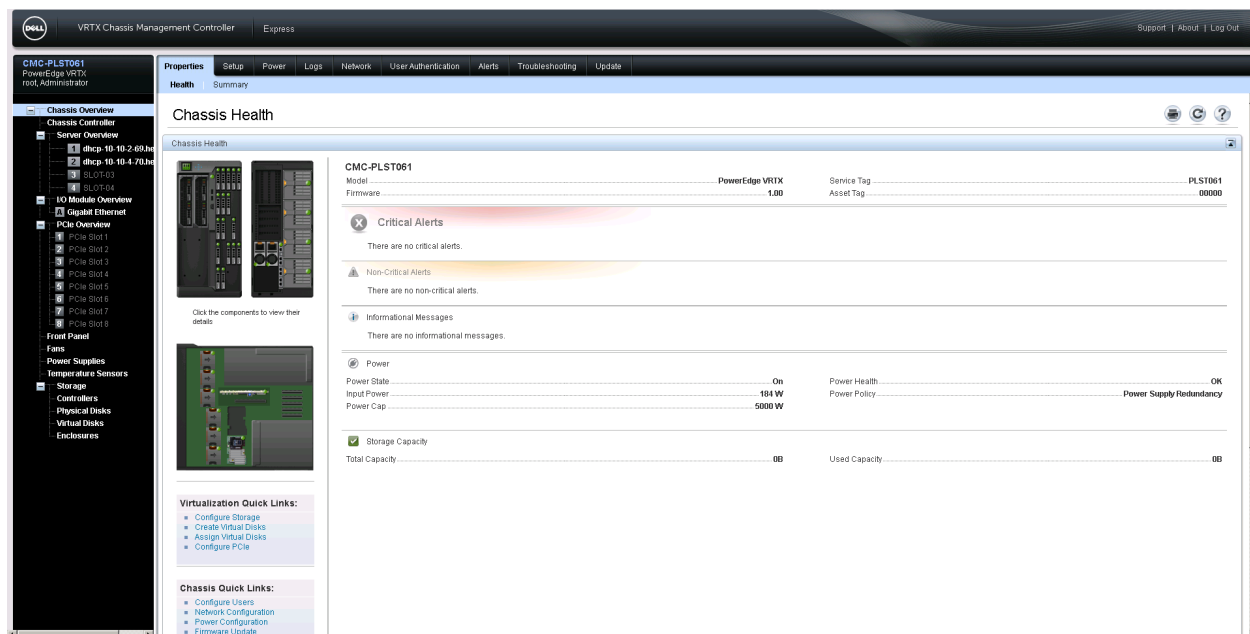
NOTE: Installing VMware ESXi on the Dell PowerEdge VRTX shared storage is not supported.

Pre-requisites

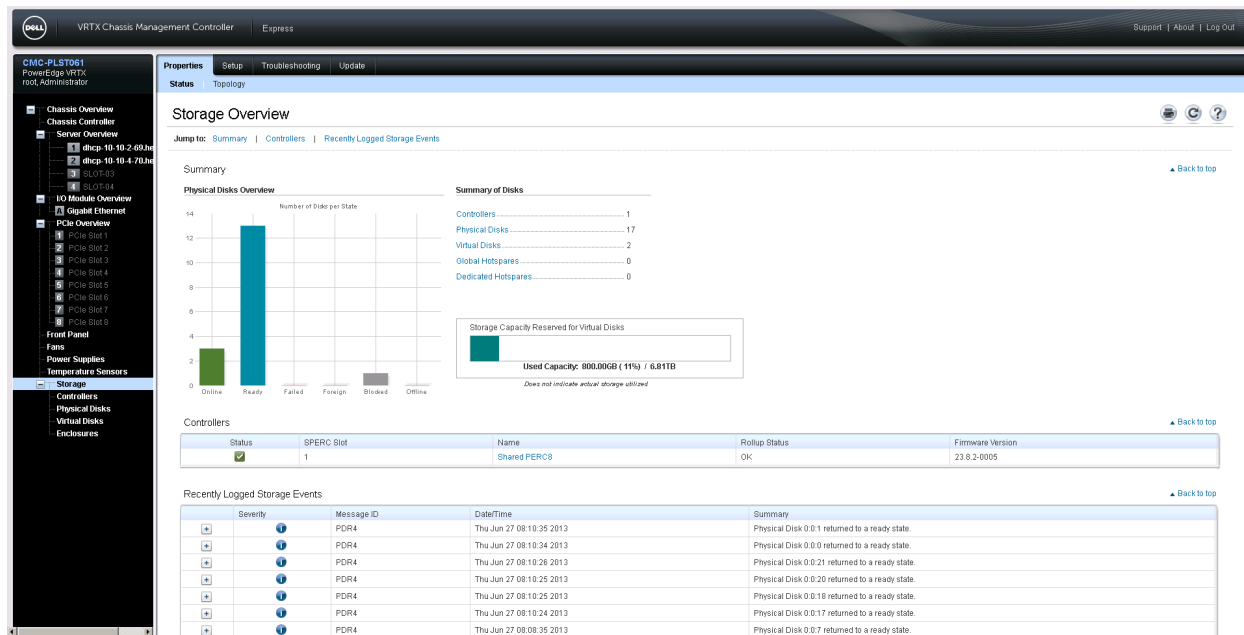
The PowerEdge VRTX blades support Dell customized version of VMware ESXi 5.1 Update1 only at its RTS. The image is downloadable from [Dell support page](#). Note that the support starts from A01 revision onwards.

Configuring PowerEdge VRTX Shared Storage

The PowerEdge VRTX is managed using Chassis Management Controller (CMC). The CMC provides a management solution to manage the entire VRTX components. The detailed description of the various components of VRTX is available at **Tech Specs** tab at [Dell website](#). The screenshot below provides an overview of the CMC management software.

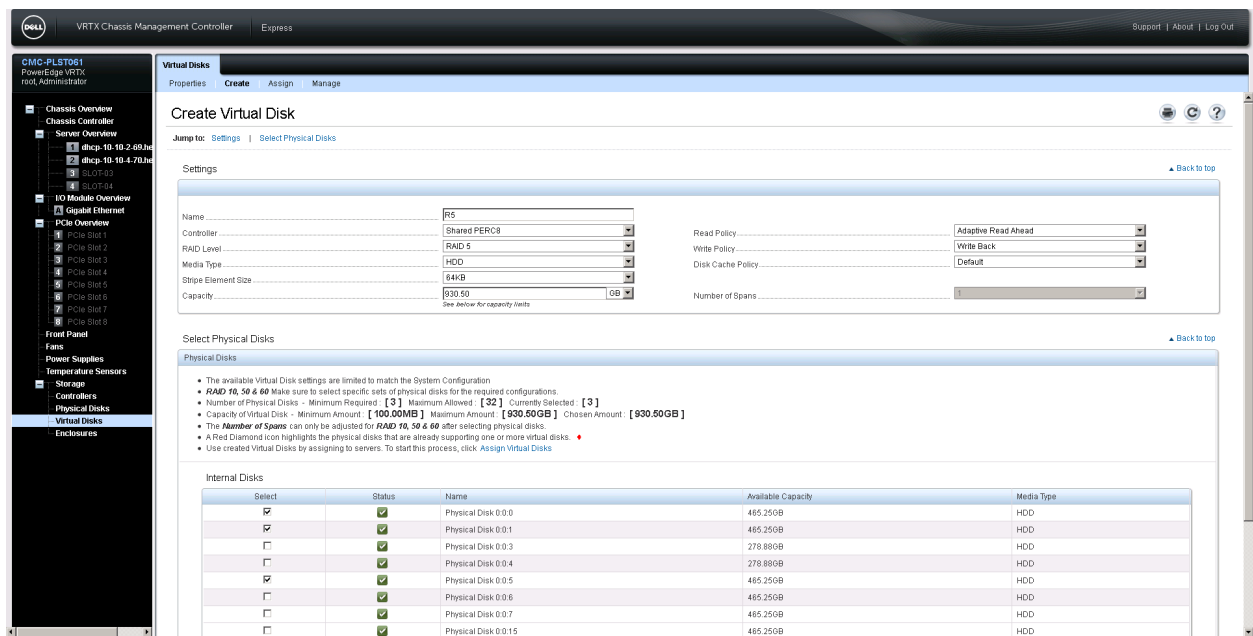


CMC provides a specific section for managing the shared storage. The shared storage controller properties are available at the **Controllers** tab under the **Storage** section as below.



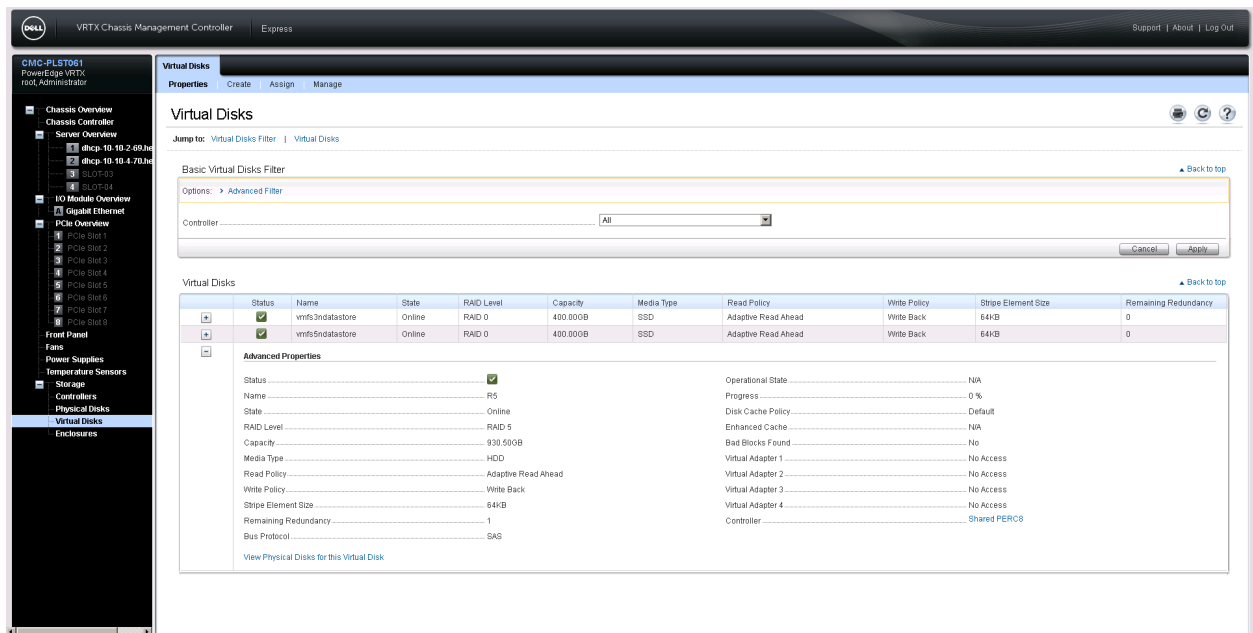
The below are the detailed steps on creating virtual disks on VRTX shared storage.

1. Navigate to **Virtual Disks** section under the **Storage** tab. Specify the **RAID Level** and **Name** to be created as shown below. The physical disks will be displayed at the bottom of this window for selection. Select the necessary disks required for the Virtual Disk and click **CreateVirtualDisk** button to create the specified Virtual Disk. A successful response will be returned once the task is successfully completed.



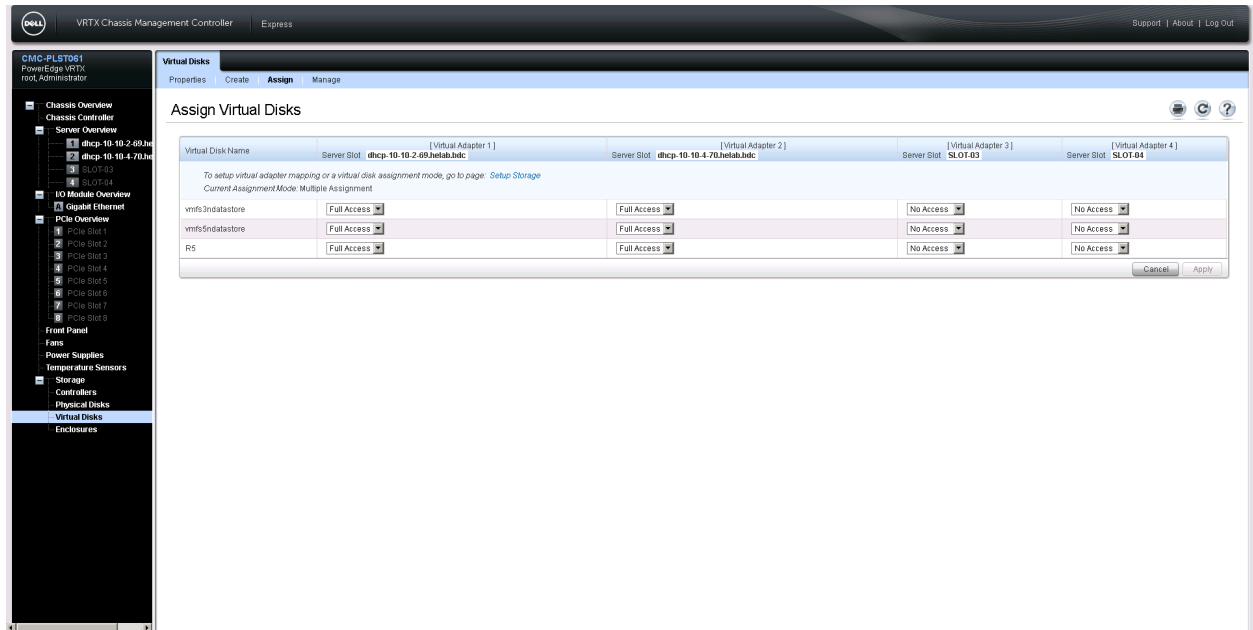
As an example, the **Name** of the virtual disk is set to **R5** and **RAID Level** is selected as **RAID 5**. Selected the disks 0, 1, 5 populated in VRTX.

2. The Virtual Disk(VD) created will be listed under the **Virtual Disks** section and the properties of the VD can be viewed by clicking the '+' sign

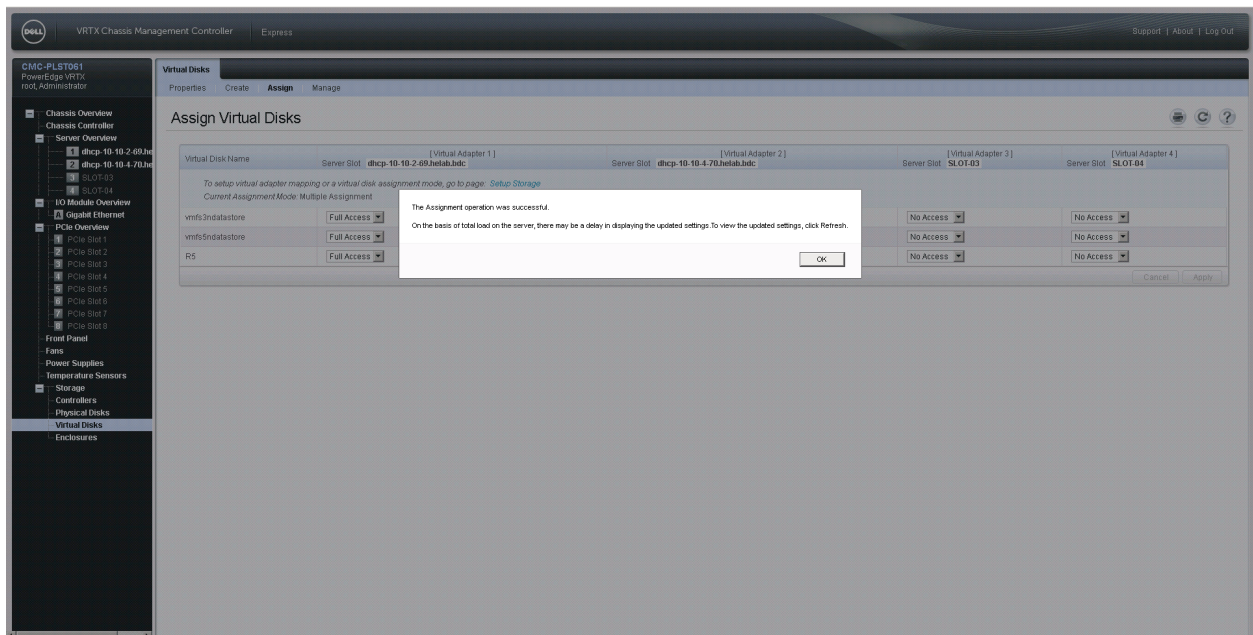


There is no manual intervention required to initialize the VD created. It will automatically get started as a background process. The progress of the initialization can be viewed by referring **Progress** property listed for the VD. The physical disks used to create the VD can be viewed using the **View Physical Disks for this virtual Disk** link at the bottom of the page.

- The next step is to assign the VD(s) created in the previous step to blade server nodes. Navigate to **Assign** sub tab under **Virtual Disks** section to assign the VD(s) to specific blade servers. The options available are **Full Access**, **Read Access** and **No Access**. By default **No Access** will be displayed for each slot. **Full Access** provides both READ and WRITE access to a LUN for the blade. The same LUN can be shared with all the four blades. This is the main feature of PowerEdge VRTX.



With this step, the VDs are attached to individual blades. A Success Response is returned once assignment operation is complete as shown below.



The next step is to configure VMware ESXi installed on the server nodes to make use of the shared storage.

Configuring VMware ESXi to use the shared storage

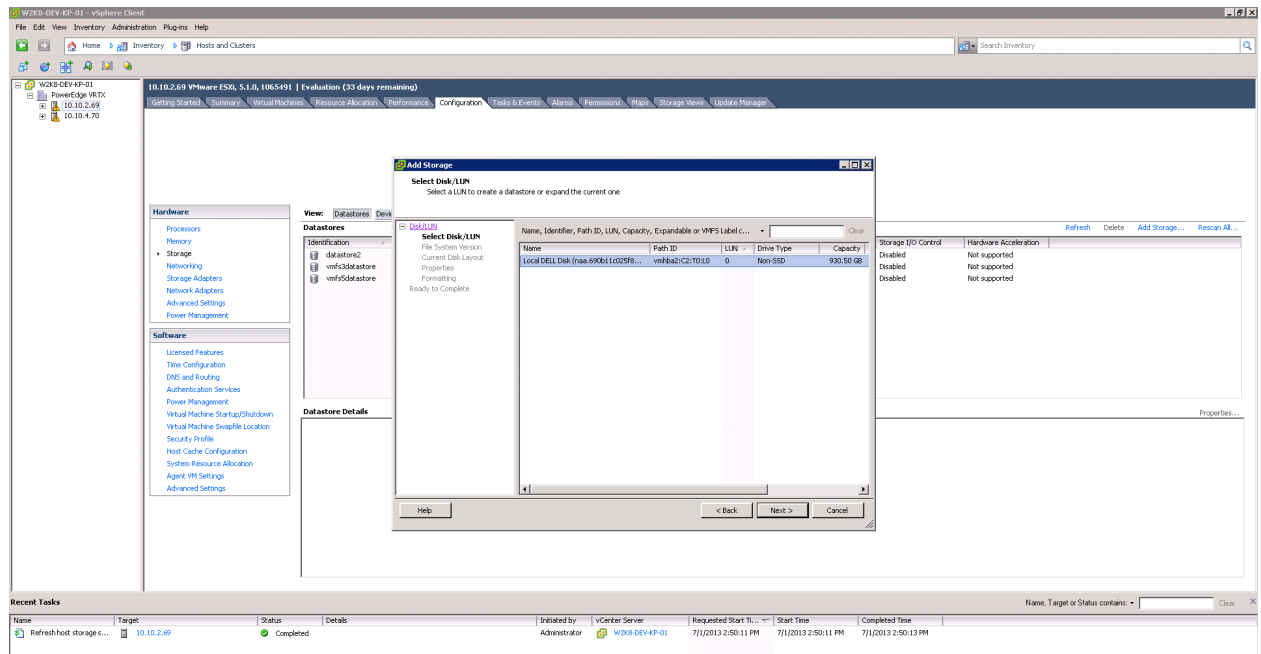
This section talks about the configuration steps required to make the shared storage available to VMware ESXi. The detailed steps are:

1. Attach the blade server installed with ESXi to vCenter server. Navigate to **Configuration** → **Storage Adapters** section. The shared storage controller will be visible under **Shared PERC 8 Mini** section. The VD assigned from CMC UI will be visible in this section.

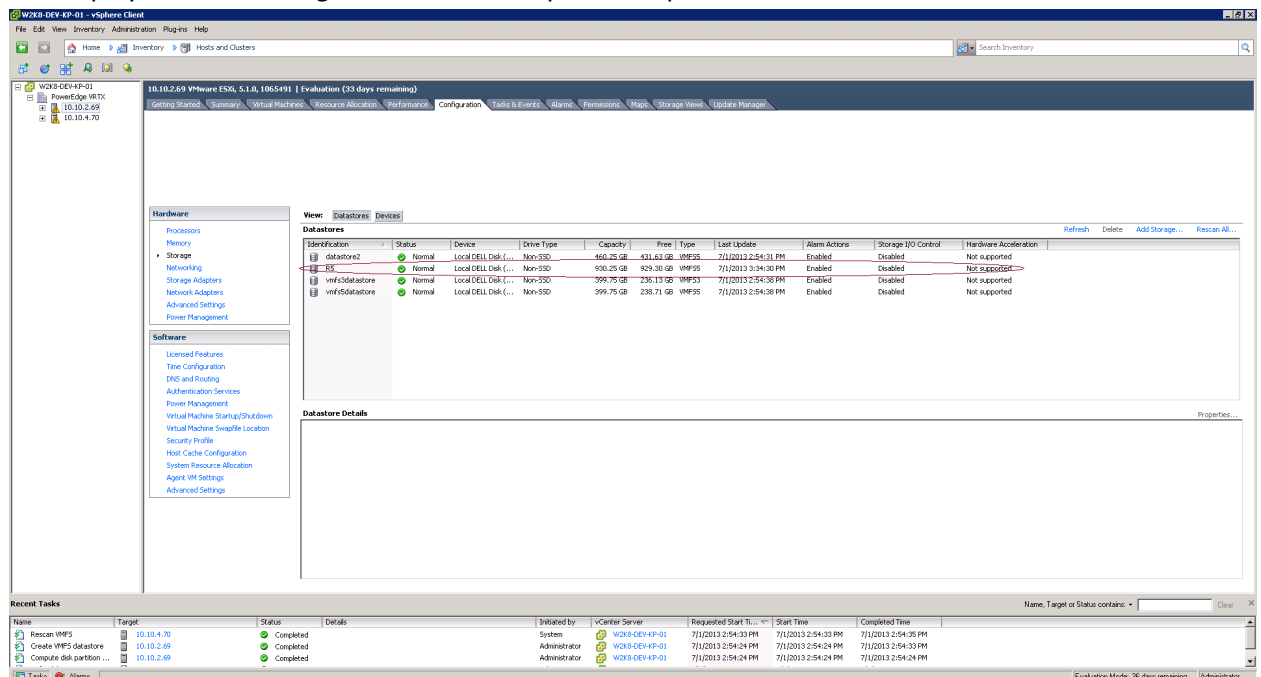
The screenshot shows the VMware vSphere Client interface for a host named 'W0X9-DEV-4P-01'. The left-hand navigation pane is expanded to 'Storage Adapters'. The main pane displays the 'Storage Adapters' section, which lists various controllers. The 'Shared PERC 8 Mini' controller is highlighted with a red circle. Below this, the 'Details' section shows a table of virtual disks (VDs) associated with the controller.

Name	Path	Operational State	Unit	Type	Drive Type	Manager	Capacity	Cost	Hardware Acceleration
Local DELL Disk (naa.600111025f85a01941295d54b371b)	vmhba2:C2:T0:L0	Mounted	0	disk	Non-SSD	Parallel SCSI	930.00 G	N/A	Not supported
Local DELL Disk (naa.600111025f85a0194036a3c4307f9)	vmhba2:C2:T0:L1	Mounted	0	disk	Non-SSD	Parallel SCSI	400.00 G	N/A	Not supported
Local DELL Disk (naa.600111025f85a0194036a3c4307f9)	vmhba2:C2:T0:L2	Mounted	0	disk	Non-SSD	Parallel SCSI	400.00 G	N/A	Not supported

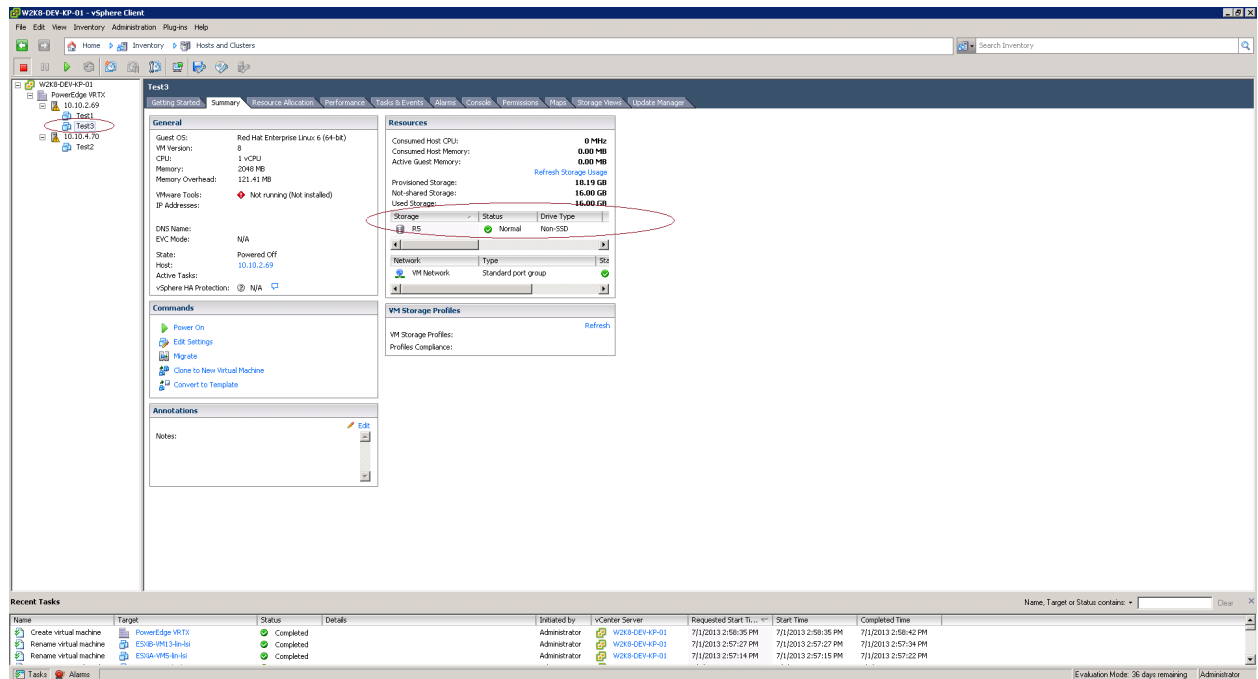
2. Format this VD as a VMFS datastore by navigating to **Storage** section of the added server. Click **Add Storage** button to start formatting the VD.



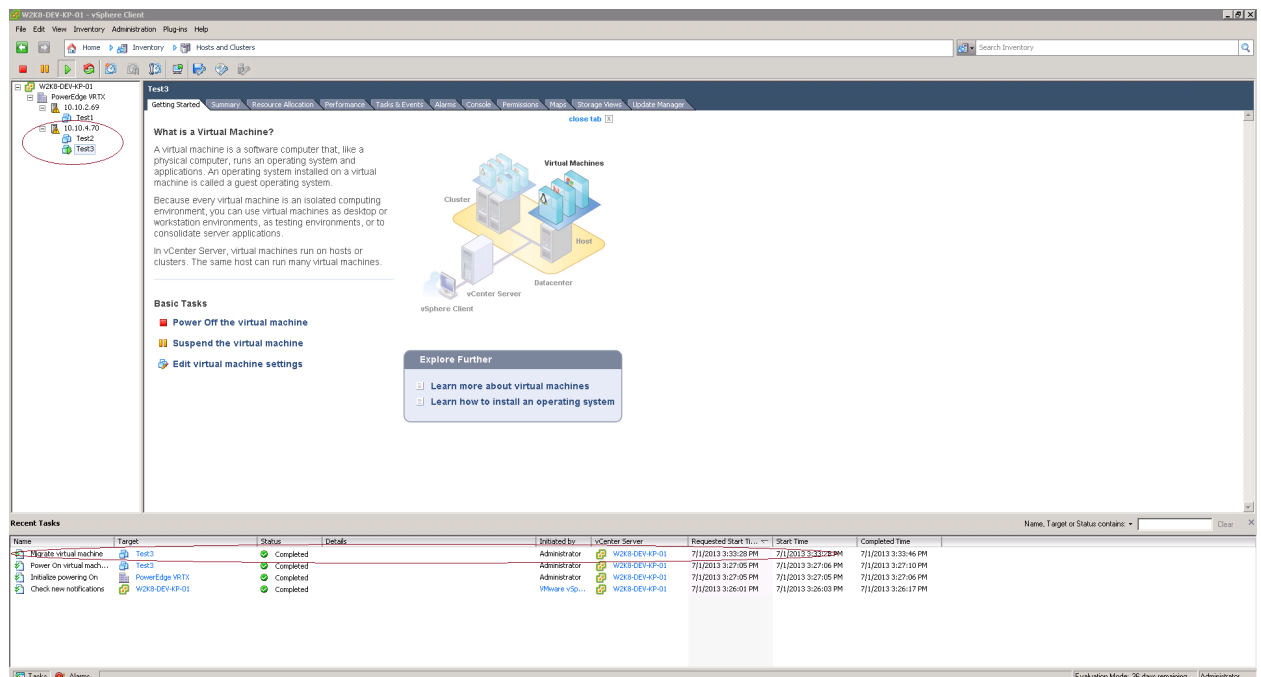
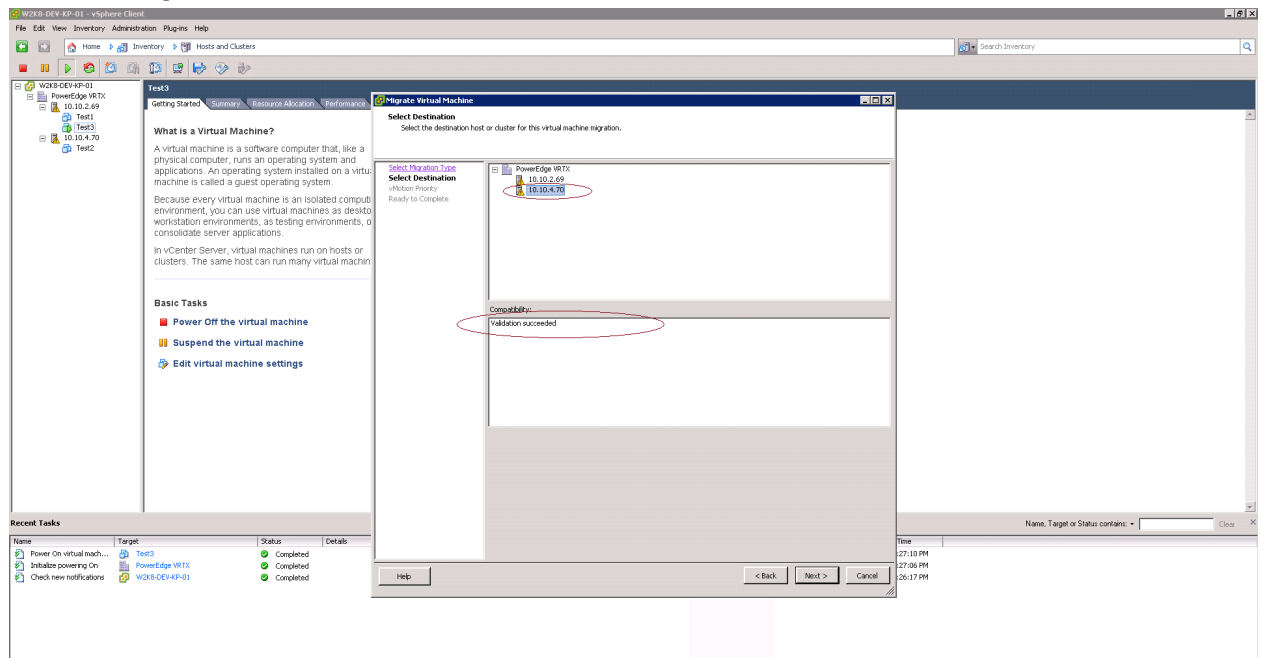
3. Follow the on screen instructions to complete the format process. The datastore will be displayed in the **Storage** section once step 5 is complete.



4. Navigate to the other host's **Storage** section and perform **refresh** button. The shared storage VD will now be displayed across all the host(s) based on the Assignment performed in Step3 in the previous section.
5. Now, this shared storage VD is available across the ESXi hosts. This shared storage can be used to host VMs and features like vMotion and clustering services can be enabled using this shared datastore. As you can see below, the VM **Test 3** is created on **R5** datastore.



6. With all other pre-requisites met for vMotion, the VM can migrate from source host to destination host as below. This shared storage can be made use of configuring VMware vSphere clustering services such as DRS and HA.



Summary

VMware ESXi 5.1 Update1 is supported in PowerEdge VRTX. This white paper detail about the step-by-step configuration steps required to make the PowerEdge VRTX shared storage available to the blades installed with VMware ESXi. Using this configuration guide, the users can enable vSphere cluster features like vMotion, High Availability, Distributed Resource Scheduling.

References

- The detailed PowerEdge VRTX spec is available in [Dell website](#).
- The VMware ESXi support details for PowerEdge VRTX are available at [Dell tech center](#).
- PowerEdge VRTX training links are available at [Dell tech center](#).
- [Dell PowerEdge VRTX AND M-SERIES Compute Nodes Configuration Study](#)