

## How to configure Emulex Fibre Channel HBAs with Hyper-V Virtual Fibre Channel on Microsoft Windows Server 2012 with a virtual machine running Microsoft Windows Server 2008 R2 x64

This application note explains how to connect directly Emulex Fibre Channel Host Bus Adapters (HBAs) to Fibre Channel storage from a virtual machine (VM) running Windows Server 2008 R2 x64. The VM is hosted on a server running the first release candidate (RC) of Windows Server 2012.

## Introduction

Virtual Fibre Channel is a new feature of Windows Server 2012 that makes HBA ports available within a guest operating system (OS), allowing the VM to connect directly to Fibre Channel storage.

The benefits of the Hyper-V virtual Fibre Channel feature include:

- Virtualize workloads and applications that require direct access to Fibre Channel-based storage
- Configure clustering directly within the guest OS (sometimes referred to as guest clustering)
- Monitor Fibre Channel ports from the VM with <u>Emulex OneCommand® Vision</u>

Support for Fibre Channel in Hyper-V guests also includes support for many related features, such as virtual SANs, live migration and MPIO. For more information on the Hyper-V virtual Fibre Channel feature, refer to <u>Hyper-V Virtual Fibre Channel Overview</u>.

## Instructions

- 1. If necessary, add the Hyper-V role to the host server. Using the Windows Server Manager tool, select Add Roles and Features→Add Hyper V.
- 2. To access Hyper-V for the first time under Server Manager, select **Tools**→**Hyper-V Manager**→**Connect to server**→**Select local computer**.
- 3. From the Actions menu at the right of the Hyper-V Manager window, select Virtual SAN Manager.
- 4. As shown in Figure 1, set up a virtual Storage Area Network (SAN) switch containing the physical ports of the Fibre Channel HBA you wish to virtualize.

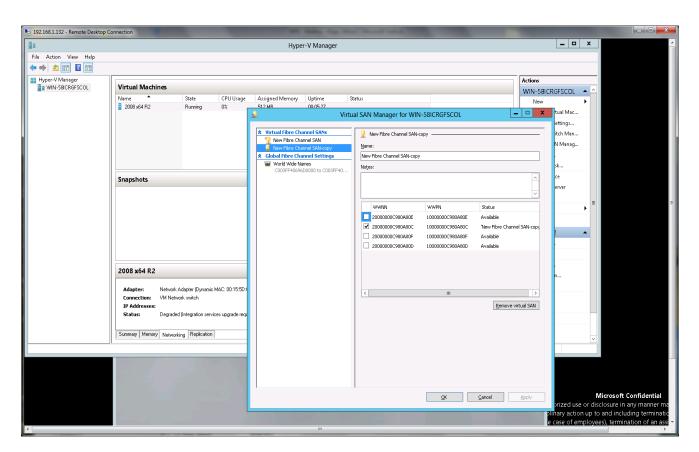


Figure 1: Setting up a virtual SAN switch

- 5. From the **Actions** menu, select **Virtual Switch Manager**. Assign the Network Interface Card (NIC) to be used for VM networking.
- 6. Add a VM by right-clicking on the name of the host server and selecting **New→VM**. Select and install the OS.
- 7. Log into the VM by right-clicking on its name and then selecting **Connect** from the popup menu.
- 8. From the Action menu in Hyper-V Manager, first select Start and then the Ctrl-Alt-Delete option.
- 9. Shut down the VM.
- 10. Right-click on the name of the VM. Select **Settings** from the pop-up menu and then assign a network switch to the VM.



11. Also assign the virtual SAN switch to the VM, as shown in Figure 2.

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Figure 2: Assigning the virtual SAN switch to the VM

- 12. Check which version of Hyper-V Integration Services has been installed in the VM. The current version is displayed in **Device Manager** under **Storage Controllers**.
  - If necessary, update Hyper-V Integration Services to the latest version. To perform the update, use the Action menu of Hyper-V Manager and select Insert Integration Services Setup Disk.
  - Note that Hyper-V Integration Services 6.1.7600.16385 does not allow Hyper-V Virtual Fibre Channel to work correctly, with this particular version being listed as a storage miniport driver. However, after an update to Hyper-V Integration Services 6.2.8441.0, the new version is listed as a Microsoft Hyper-V Fibre Channel HBA.



13. Update Fibre Channel switch zoning to include the new virtual WWPN, as shown in Figure 3.

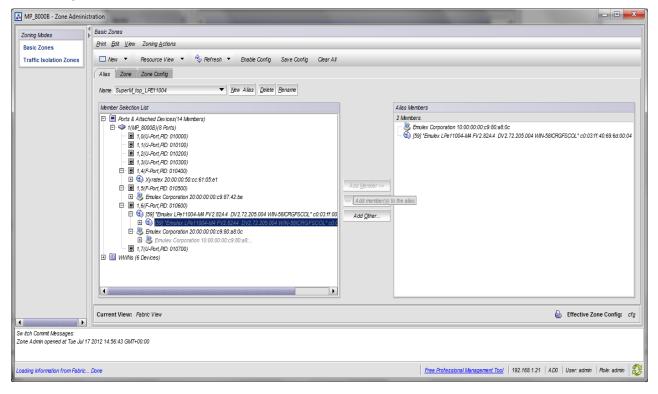


Figure 3: Updating Fibre Channel switch zoning to include the new virtual WWPN



14. On the storage, map a LUN to the new virtual port (vPort), as shown in Figure 4. Note that Xyratex storage is utilized in this example.

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Figure 4: Using StorView software to map a LUN to the new vPort



15. To verify Hyper-V Virtual Fibre Channel set-up, scan for new devices using Disk Manager on the VM. Figure 5 shows the Virtual Fibre Channel-linked LUN – Disk 1 – on which volume E: has been created.

Computer Management (Local)	Volume	Layout	Type	File System	Status	Capacity
🖃 🙀 System Tools	📼 (C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Crash Dump, Primary Partition)	126.90 GB
🕀 🕑 Task Scheduler	New Volume (E:)	Simple	Basic	NTFS	Healthy (Primary Partition)	4.66 GB
🛨 🛃 Event Viewer	System Reserved	Simple	Basic	NTES	Healthy (System, Active, Primary Partition)	100 MB
🕀 🛐 Shared Folders	WMGUEST (D:)	Simple	Basic	CDFS	Healthy (Primary Partition)	25 MB
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Device Manager						
🖃 🚝 Storage						
Disk Management						
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Figure 5: Volume E: has been created on the Virtual Fibre Channel-linked LUN

The steps demonstrated in the application note should assist in configuring a virtual HBA within a Microsoft Hyper-V virtual machine. For more information, please contact your OEM technical support or Emulex technical support.



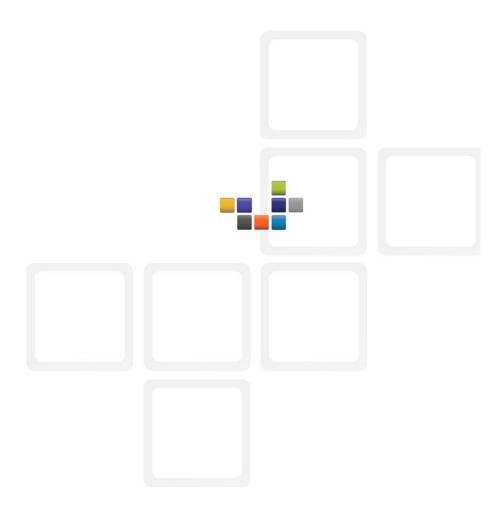
## More information

Emulex Solution Implementer's Lab website

www.implementerslab.com

To help us improve our documents, please provide feedback at implementerslab@emulex.com.

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