

VMware ESXi 5.5 – 6.5 Host Configuration

Rapid EqualLogic Configuration Series Implementation Guide

September 2017

Revisions

Date	Status
April 2012	Initial release
September 2012	Updates for VMware [®] ESXi™ 5.1 and MEM 1.1.1
October 2012	Correction in section 2: "Enable flow control on iSCSI NICs"
December 2012	Added info for connecting to iSCSI volumes
April 2013	Added info for setting Software Initiator LoginTimeout parameter
December 2013	Added info for ESXi 5.5, MEM 1.2, and Dell [™] PS Series firmware version 7
July 2015	Added info for ESXi 6.0, MEM 1.3, and Dell PS Series firmware version 7.1.x Removed info for ESXi 4.x and 5.0
September 2017	Added info for ESXi 6.5 and Dell PS Series firmware version 9.x Removed info for ESXi 5.1

Document conventions

Format	Description	Example
Bold	User input: menus, tabs, buttons	In the Console tab, select Troubleshooting and click OK .
[Keystroke]	Keystroke	Verify the results and press [Enter].
[Key1]+[Key2]	Combination keystroke	Press [Alt]+[F1] to open the local console.
Screen text	Console or command-line text	Type the command: setup.pl
Italic screen text	Placeholder or variable	Type: server=host IP address

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1 Prerequisites

This document is one part of a complete installation guide series from the <u>Rapid EqualLogic</u> <u>Configuration Portal</u>. Please make sure that you have the complete set for your configuration before proceeding.

Before proceeding:

- Ensure that ESXi 5.5, 6.0, or 6.5 is installed on the host server.
- Update the ESXi 5.5, 6.0, or 6.5 host by applying all VMware patches. The recommended method is to patch the ESXi host using VMware vCenter[®] Update Manager.
- Ensure that the latest PS Series array firmware is installed. To download PS Series firmware and instructions, visit <u>https://eqlsupport.dell.com</u> (login required).
- Review <u>Best Practices for Implementing VMware vSphere in a Dell PS Series Storage Environment</u> to ensure proper configuration for your environment.

The information in this document was confirmed using ESXi 6.5 Update 1 (build 5969303) installed on the host and PS Series firmware version 9.1.2.

2 Enable flow control on iSCSI NICs

The following procedure requires physical or remote SSH access to the server. Refer to <u>VMware KB article</u> <u>101790</u> for more information on using the ESXi console in Tech Support Mode.

- 1. At the ESXi console, type: esxcli nic pauseParams list
- 2. The available NICs, support for pause parameters, and each NICs RX and TX pause parameter setting are among the information displayed.
- 3. Determine which vnmics are assigned to adapters used for SAN connectivity, and confirm both Pasue RX and Pause TX are set to true.
- 4. If RX and TX are shown as **true**, proceed to section 3, as no further action is needed. If one or both are showing **false**, execute the following steps:
 - a. At the ESXi console, type: vi /etc/rc.local.d/local.sh
 - b. Type the letter \circ (lowercase) to append a new line to the file.
 - c. Type: ethtool --pause vmnic# tx on rx on (substitute the # that corresponds to the NICs connected to the SAN identified in the steps above) and press [Enter].

Repeat this for each NIC that is connected to the SAN before proceeding to the next step.

- 5. Press [Esc] and type the following: :wq
- 6. Press [Enter] to save the file.
- 7. Restart the system to apply the changes.

For more information, refer to VMware KB article 1013413.

Configure additional security access for ESXi 6.0

1. To enable SSH access to the ESXi host using the vSphere Web Client, select **Host > Manage** in the **Navigator** pane, then select **TSM-SSH** in the **Services** tab, and click **Start**.

Note: SSH can also be enabled via the ESXi console: Troubleshooing Options > Enable SSH.

Note: The VMware vSphere[®] Command Line Interface (version-specific for the environment) must be installed on the management server.

- 2. Connect to the ESXi host using an SSH utilty.
 - a. Type the command: openssl x509 -sha1 -in /etc/vmware/ssl/rui.crt -noout -fingerprint
 - b. Copy the output immediately following SHA1 Fingerprint=
 - c. Exit the SSH session/utility.
- 3. From the vSphere CLI command prompt, change to the directory: C:\Program Files (x86)\VMware\VMware vSphere CLI\Perl\apps\general
- 4. Type the command:

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credstore_admin.pl add -server ESXi host IP address --thumbprint output copied from item 2b above

For more information, refer to VMware KB article 2108416.

Install and configure the Multipathing Extension Module

Note: The Multipathing Extension Module (MEM) requires VMware vSphere licensing of: Version 5.x - Enterprise or Enterprise Version 6.x - Standard or higher

1. To place the ESXi host in Maintenance Mode, right-click the ESXi host from vSphere Web client and select **Enter Maintenance** mode.

Note: The appropriate VMware vSphere CLI (vCLI 5.5, 6.0, or 6.5) environment must be installed on the management server.

- 2. From the vCLI command prompt, change to the directory where the Multipathing Extension Module (MEM) was unzipped.
- 3. Type the following command: setup.pl --install --server=ESXi host IP address --bundle=bundle file name (bundle file name refers to the zip file, such as dell-eql-mem-esx6-1.5.0.437336.zip).
- 4. When prompted, log in as root with the correct password. The installation process may take several minutes.
- 5. When setup is complete, it displays: Clean install was successful.
- 6. Reboot the ESXi host. After the ESXi host has rebooted, type the following command in the vSphere CLI command prompt: setup.pl --configure --server=ESXi host IP address
- 7. Enter the username and password when prompted.
- 8. Provide the following answers to the configuration wizard questions:
 - a. For the switch type, press [Enter] to select vSwitch (the default).
 - b. For the vSwitch name, press [Enter] to accept the default value.
 - c. To identify the NICs, enter the vmnic name that will handle the iSCSI traffic, separated by a space. For example: vmnic4 vmnic5
- 9. Enter the IP addresses for each vmnic.
- 10. Enter the netmask.

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- 11. Enter the MTU size of 9000.
- 12. Select the default prefix by pressing [Enter].
- 13. Enter the VLanID to be used for the iSCSI Portgroup (default is 0).
- 14. Select the default for the [SW] SW iSCSI or HW iSCSI request by pressing [Enter].
- 15. If prompted, answer **yes** to enable the iSCSI initiator.
- 16. Enter the PS group IP address.
- 17. Press [Enter] to deactivate CHAP.
- 18. Answer **yes** to apply Dell EqualLogic Best Practice settings.
- 19. Answer **yes** to proceed with the configuration.
- 20. Upon completion of configuration, remove the ESXi host from Maintenance Mode by right-clicking the ESXi host from vSphere Web client and selecting **Exit Maintenance** mode.

Note: Additional information on the installation of MEM, including installation using VMware vSphere Update Manager, can be found in <u>Configuring and Installing the PS Series Multipathing Extension</u> Module for VMware vSphere and PS Series SANs.

Connecting to volumes

- 1. From the vSphere ESXi Embedded Host client, in the **Navigator** area, select **Storage > Adapters > iSCSI Software Adapter**, and click **Configure iSCSI** at the top of the Adpaters area.
- 2. Copy the iSCSI initiator name found in the Name & alias field and proceed to the next step.

vmware [,] ESXi ^{**}		
Ravigator	R620-03-ESXi - Storage	
✓ ☐ Host Manage Monitor	Datastores Adapters Devices	
) 🔂 Virtual Machines 🛛 🚺	Name	Model
📲 Storage 📃 🚺	🜉 vmhba0	Patsburg 6 Port SATA AHCI Controller
🕨 🛤 vmhba64	👼 vmhba1	MegaRAID SAS SKINNY Controller
🖻 🛤 vmhba0	👼 vmhba2	2600 Series 16Gb Fibre Channel to PCI Express HBA
More storage	🐖 vmhba3	2600 Series 16Gb Fibre Channel to PCI Express HBA
> 🧕 Networking 🕴 🚺	🔯 vmhba64	iSCSI Software Adapter
	孎 vmhba32	USB Storage Controller
	🐖 vmhba33	QLogic 57810 10 Gigabit Ethernet Adapter
	🐖 vmhba34	QLogic 57810 10 Gigabit Ethernet Adapter

The next screenshot illustrates how to use the iSCSI initiator name to limit iSCSI access at the EqualLogic Group Manager. The use of CHAP to limit iSCSI access, as described in <u>Best Practices</u> for Implementing VMware vSphere in a Dell PS Series Storage Environment is the best practice, and can be required in larger environments.

Create volume					×
3 - Define iSCSI access poir	nts	Dell EqualLogic Group Manager		×	?
1 General	What kind of access time do you want for this up	New Basic Access Poin	t		
1 - General 2 - Space > 3 - iSCSI access 4 5 6	What kind of access type do you want for this way Cogy access controls from another volume Select or define access control policies Define one or more basic access points Nong (do not allow access) Define one or more access points CHAP account iSCSI initiator None	Description: ESXI Host 1 You must supply at least one of th CHAP acc Paste the is is_CSI initiator name: iqn.1998-01.com.vmware:r620-03 P address: Access point applies to: Volumes and snapshots Volumes only Stapshots only Stapshots only	e following: SCSI initia 3-esxi-126ec79d	tor name	here.
	Do you want to allow simultaneous access to the \textcircled{O} Yes	is volume from more than one iS0	OK Can CSI initiator ?	cel Help	
	© №	Back	<u>N</u> ext Ski	p to end	Cancel

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- 3. Select the access type that allows to Define one or more basic access points.
- 4. Click Yes to allow simultaneous access to this volume from more than one iSCSI initiator.
- 5. Click **Add**, and in the **New Basic Access Point** window, specify the type of access you plan to use (CHAP, initiator name, or IP address).
- 6. In the vSphere ESXi Embedded Host client, select **Storage > Adapters > iSCSI Software Adapter**, and click **Rescan** at the top of the Adpaters area

vmware esxi		
Navigator	R620-03-ESXi - Storage	
✓ ☐ Host Manage Monitor	Datastores Adapters Devices	
> 🔂 Virtual Machines 🗾 0	Name	Model
📲 Storage 📃 🚺	🙀 vmhba0	Patsburg 6 Port SATA AHCI Controller
⊢ 🛤 vmhba64	🙀 vmhba1	MegaRAID SAS SKINNY Controller
⊢ 🛤 vmhba0	📕 vmhba2	2600 Series 16Gb Fibre Channel to PCI Express HBA
More storage	🛤 vmhba3	2600 Series 16Gb Fibre Channel to PCI Express HBA
> Q Networking	🙋 vmhba64	iSCSI Software Adapter
	🛤 vmhba32	USB Storage Controller
	🙀 vmhba33	QLogic 57810 10 Gigabit Ethernet Adapter
	🛤 vmhba34	QLogic 57810 10 Gigabit Ethernet Adapter

7. Change from the **Adapters** tab to the **Devices** tab and confirm the new EQLOGIC iSCSI Disk device with the correct size is displayed.

📲 Navigator	🗆 🗐 R62	20-03-ESXi - Storage			
👻 🗒 Host	Data	astores Adapters Devices			
Manage					
Monitor	1	New datastore 🔳 Increase capacity 📃 Rescan 🤁 Refresh 💮 Actions			
) 🔂 Virtual Machines	0 Na	me	- Status ~	Туре ~	Capacity ~
🗝 🧮 Storage 💦 👘	1 💿	Local HL-DT-ST CD-ROM (mpx/mhba0:C0:T4:L0)	Normal	CDROM	Unknown
🖻 🛤 vmhba64		Local DELL Disk (naa.6d4ae5209c6416002129e91674f7b940)	Normal	Disk	232.38 GB
🖻 🛤 vmhba0		EQLOGIC iSCSI Disk (naa.60fff1ba5dcd2546b399551343c51bde)	🥑 Normal	Disk	500.01 GB
More storage		Local USB CD-ROM (mpxvmhba32:C0:T0:L0)	📀 Normal	CDROM	Unknown
> 🧕 Networking	1 🔜	Local USB Direct-Access (mpx/mhba32:C0:T0:L1)	Normal	Disk	0 B
		Local DP Enclosure Svc Dev (t10.DPBACKPLANE000000)	Normal	Unknown	Unknown

6 Creating a datastore

1. From the vSphere ESXi Embedded Host client, on the **Storage > Devices** tab, click **New datastore**.

📲 Navigator 🖂	R620-03-ESXi - Storage			
👻 🗐 Host	Datastores Adapters Devices			
Manage				
Monitor	🖺 New datastore 📧 Increase capacity 📃 Rescan 🛛 🤁 Refresh 🛛 🔅 Actions			
> 🔂 Virtual Machines 🗾 🛛 🕕	Name	v Status v	Type	Capacity ~
👻 🧮 Storage 📃 📃 🚺	Local HL-DT-ST CD-ROM (mpxvmhba0:C0:T4:L0)	Normal	CDROM	Unknown
⊢ 🛤 vmhba64	🔜 Local DELL Disk (naa.6d4ae5209c6416002129e91674f7b940)	Normal	Disk	232.38 GB
🕨 🛤 vmhba0	EQLOGIC ISCSI Disk (naa.60ff1ba5dcd2546b399551343c51bde)	Normal	Disk	500.01 GB
More storage	Local USB CD-ROM (mpx/mhba32:C0:T0:L0)	Normal	CDROM	Unknown
> 🧕 Networking 1	Local USB Direct-Access (mpx.vmhba32:C0.T0:L1)	Normal	Disk	0 B
	Local DP Enclosure Svc Dev (10.DPBACKPLANE000000)	Normal	Unknown	Unknown

2. In the **New datastore** wizard, provide a name for the new datastore and click **Next**.

🖺 New datastore - PSVol0	
1 Datastore name	Datastore name
2 Select device	Provide a name for the new datastore
3 Select partitioning options 4 Ready to complete	Name
	Name Revisio
	PSV010
MMA/aro	
VIIIVale	
	Back Next Finish Cancel

Note: Dell EMC recommends using the PS Series storage volume alias as the name for the datastore within vSphere to aid in effective management and troubleshooting.

3. Select the appropriate available device from which to create the new datastore and click **Next**.

ataatara nama	Coloret devices							
valastui e name	Select device	Select device						
elect device	Select a device on which to create a new	w VMFS partition						
leady to complete	The following devices are unclaimed ar	id can be used to crea	te a new VM	FS data	istore			
	Name	~	Туре	~	Capacity	~	Free space	~
	📃 EQLOGIC ISCSI Disk (naa.60fff1ba	a5dcd2546b39955	Disk		500.01 GB		500.01 GB	
							1 ite	ems
vmware								
vm ware								

Note: Step 4 is skipped in ESXi 6.0 because VMFS-5 is the only option.

4. Select the partitioning layout and file system version from the drop-down lists and click Next.

🖆 New datastore - PSVol0					
 1 Datastore name 2 Select device 3 Select partitioning options 	Select partitioni Select how you would like	ng options a to partition the device			
4 Ready to complete	Use full disk	VMFS 6	•		
	Before, select a p	artition	After		
	Fre	e space (500.01 GB)		1. VMFS (500.01 GB)	
vm ware [®]					
			Ba	ck Next Finish	Cancel

5. Confirm the summary information and click **Finish** to complete the New Datastore wizard.

🖺 New datastore - PSVol0		
 1 Datastore name 2 Select device 	Ready to complete	
 ✓ 3 Select partitioning options 	Summary	
4 Ready to complete	Name	PSV010
	Disk	EQLOGIC ISCSI Disk (naa.60fff1ba5dcd2546b399551343c51bde)
	Partitioning	Use full disk
	VMFS version	6
vm ware		
		Back Next Finish Cancel

6. Click **Yes** to confirm the warning message.

🔔 Warning	
1	The entire contents of this disk are about to be erased and replaced with the specified configuration, are you sure?
	Yes No