

Windows Server 2012 R2 and Hyper-V Server 2012 R2 Host Configuration

Rapid EqualLogic Configuration Series Implementation Guide

June 2014



Revisions

Date	Status
December 2012	Initial release
March 2013	Added Hyper-V 2012 content
June 2014	Updated for Windows Server 2012 R2 and Hyper-V Server 2012 R2

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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.

Full link to document site:

http://en.community.dell.com/techcenter/storage/w/wiki/3615.rapid-equallogic-configuration-portalby-sis.aspx

Note: For instructions on enabling the Hyper-V role for a Windows 2012 Server, go to: <u>http://technet.microsoft.com/en-us/library/hh831531.aspx</u>

Note: To enable Hyper-V to use volumes located on the EqualLogic iSCSI SAN, you must first complete the configuration instructions provided in this guide.



1 NIC device driver update and installation

This configuration is for Windows Server® 2012 or Windows Server® 2012 R2 hosts.

1.1 Download the latest driver update for the Intel NICs

Note: The following procedure is for an Intel 1G or 10G NIC. If you are using Broadcom[®] network adapters (NICS) for SAN connectivity, proceed to "Downloading the latest driver update for Broadcom NICs".

- 1. Go to <u>http://support.dell.com</u> and click **Start Here** under **Support for Small Business**.
- 2. In the following page, enter your server Service Tag. If you cannot find it, then browse the product category to find the model of your server.
- 3. Next go to the Drivers & Download tab.
- In the Refine Your Results window, select MS Windows Server 2012 or MS Windows Server 2012 R2/SP for the Operating System, and Network as the Category. Filtering by the Release Date also helps to find the latest updates.

Refine your results: (13 files) See More Filtering Option					
Operating System:	Category:	Release Date:	Importance:		
MS Windows Server 2012	Network	All	All		

5. Download the most recent version of the Intel driver package for Intel PCI-E 10Gig and 1Gig Family of Server Adapters.



1.2 Install the Intel driver update

- 1. Click Install to start, and then click Next.
- 2. After accepting the license, make sure that only **Drivers**, **Intel(R) PROset**, and **Advanced Network Services** are selected as shown and then click **Next**.

Intel(R) Network Connections	X
Setup Options Select the program features you want installed.	(intel)
Install:	
Intel(R) PROSet for Windows* Device Manager Advanced Network Services FCoE using Data Center Bridging ISCSI using Data Center Bridging SMASHv2 Provider Intel(R) Network Connections SNMP Agent	
Feature Description Advanced Network Services software for teaming and VLANs	
< Back Next >	Cancel

3. Click **Next** and then **Install** to complete the installation.



1.3 Configure the Intel network adapters (NICS)

After installing the Intel driver, launch the Windows device manager and expand **Network adapters**. You should see the Intel NICs listed, as shown.

A Device Manager	_	x
File Action View Help		
⊿ 🚔 SRA-10Gb-W2k12		~
👂 🚛 Computer		
👂 🧫 Disk drives		
🔈 🎭 Display adapters		
DVD/CD-ROM drives		
🔈 🕼 Human Interface Devices		
IDE ATA/ATAPI controllers		
b — Keyboards		
Mice and other pointing devices		
👂 🖳 Monitors		
🛛 💇 Network adapters		
😰 Broadcom BCM57810 NetXtreme II 10 GigE (NDIS VBD Client) #127		
💇 Broadcom BCM57810 NetXtreme II 10 GigE (NDIS VBD Client) #128		
😰 Intel(R) Ethernet 10G 2P X520 Adapter		
💇 Intel(R) Ethernet 10G 2P X520 Adapter #2		
🔮 Intel(R) Ethernet 10G 4P X540/1350 rNDC		
🔮 Intel(R) Ethernet 10G 4P X540/1350 rNDC #2		
💇 Intel(R) Gigabit 4P X540/I350 rNDC		
👷 Intel(R) Gigabit 4P X540/I350 rNDC #2		
👷 💇 Microsoft Kernel Debug Network Adapter		
▷ 🏆 Ports (COM & LPT)		
> 💼 Print queues		
Processors		
▷ 🗇 Storage controllers		
🔈 🌉 System devices		
N 🚔 Universal Serial Rus controllers		 Y

For each Intel NIC that will be connected to the SAN, you need to change the following settings:

- 1. In **Device Manager**, double click the Intel NIC used for SAN traffic.
- 2. In the **Properties** dialog box, click the **Advanced** tab to configure the NIC settings.
- 3. Set the Jumbo Packet value to **9014 Bytes** and click **OK**.

Repeat these steps for all the NICs used for SAN traffic.



1.4 Downloading the latest driver update for Broadcom NICs

Note: The following procedure is for a Broadcom NIC. If you are using Intel Network Adapters (NICs), refer to section 1.1 titled, "Downloading the latest driver update for the Intel NICs".

- 1. Go to http://support.dell.com and click Start Here under Support for Small Business.
- 2. In the following page, enter your server Service Tag. If you cannot find it, then browse the product category to find the model of your server.
- Next go to Drivers & Download tab.
 In the Refine Your Results window, select MS Windows Server 2012 or MS Windows Server 2012
 R2/SP for the Operating System, and Network as the Category. Filtering by the Release Date also helps to find the latest updates.

Refine your results: (13 file	es)			See More Filtering Options
Operating System:	Category:	Release Date:	Importance	3:
MS Windows Server 2012	Network	▼ All	▼ All	•

4. Download the most recent version of the Broadcom Corporation -Driver package for "NetXtreme I and NetXtreme II driver family".



1.5 Install the Broadcom driver update

 Launch the Broadcom driver installation update. At the custom setup screen, select the **Control Suite** and **BASP** features as shown, and click **Next**.

😸 Broadcom Drivers and Management Applic	ations - InstallShield W 🗙
Custom Setup Select the program features you want installed.	
Click on an icon in the list below to change how a feature is in The privers and Management Applications Control Suite SNMP CIM Provider CIM Provider BASP	stalled. Feature Description This feature will install the Broadcom Advanced Server Program. This NDIS intermediate driver software allows for load balancing and failover, and VLAN capabilities. This feature requires 10MB on your hard drive.
InstallShield —	Next > Cancel

2. A system reboot may be required to complete the installation.



1.6 Configure Broadcom NIC device settings using BACS

Launch the Broadcom Advanced Configuration Suite (BACS) tool by going to **Start** > **Broadcom Advanced Control Suite**.



- 1. On the left pane, select the Broadcom NIC that will be used to connect to the SAN
- 2. On the right pane, click the **Configurations** tab.
- 3. Perform the following steps on each NIC port connected to the SAN network: Leave all values at default except for the following:

Option	Value	
Flow control	Rx & Tx Enabled	
Jumbo Mtu	9014	

4. Click **Apply** to save the changes.

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5. Exit Broadcom Advanced Control Suite.



2 Configure networking

Configure and optimize the NIC ports to be used for SAN connectivity.

1. In the NIC properties, disable (uncheck) all protocols except **Internet protocol Version 4** (TCP/IPv4).

Note: If using Broadcom NICs, the Broadcom Advanced Server Program Drivers are protected and cannot be disabled.

SLOT 3 Properties	x			
Networking Sharing				
Connect using:				
🔮 Broadcom BCM57810 NetXtreme II 10 GigE (NDIS VBD	C			
Configure.				
This connection uses the following items:				
 File and Printer Sharing for Microsoft Networks Broadcom Advanced Server Program Driver Microsoft Network Adapter Multiplexor Protocol Link-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 4 (TCP/IPv4) 				
Install Uninstall Properties				
Description TCP/IP version 6. The latest version of the internet protocol that provides communication across diverse interconnected networks.				

2. Double click **Internet Protocol Version 4 (TCP/IPv4)** to enter the appropriate IP address for each SAN connected port (refer to the Prerequisites Table in Preparation document selected from the <u>Rapid EqualLogic Configuration Portal</u>, and then click **Advanced Settings**.



3. In the **WINS** tab of the **Advanced TCP/IP Settings** dialog box, uncheck **Enable LMHOSTS lookup**, select **Disable NetBIOS over TCP/IP**, and click **OK**.

Advanced TCP/IP Settings	?	x		
IP Settings DNS WINS				
WINS addresses, in order of use:		_		
	t l			
Add Edit Remove				
If LMHOSTS lookup is enabled, it applies to all connections for w TCP/IP is enabled.	hich			
Import LMHO)STS			
NetBIOS setting O Default: Use NetBIOS setting from the DHCP server. If static IP address is used or the DHCP server does not provide NetBIOS setting, enable NetBIOS over TCP/IP. O Enable NetBIOS over TCP/IP O Disable NetBIOS over TCP/IP				
ОК	Can	icel		

4. Repeat the steps above to configure and optimize each NIC port to be used for SAN connectivity.



EQL HIT kit installation

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Download the latest Host Integration Tools (HIT) kit from <u>https://support.eguallogic.com/secure/login.aspx</u> and run the setup.

- 1. Select the **Complete** installation option, and then click **Next**.
- 2. At the **Installation Complete** screen, uncheck the **Launch Remote Setup Wizard** checkbox and then click **Finish**.



When the following message is displayed, click **Yes** to restart the system.

闄 Dell 🛙	EqualLogic Host Integration Tools Install 🗴
i	You must restart your system for the configuration changes made to Dell EqualLogic Host Integration Tools to take effect. Click Yes to restart now or No if you plan to restart later.
	Yes No





4 Configure SAN switch fabric

If you have already configured your SAN switches, continue to the next section. If not, refer to the specific instructions for configuring each switch model in the <u>Rapid EqualLogic Configuration Portal</u>.

5 Configure storage

5.1 Configure array

If you have already configured the storage array, continue to section 5.2. If you have not completed the array configuration, then complete the steps for array configuration using the instructions in the <u>Rapid EqualLogic Configuration Portal.</u>

5.2 Edit volume access permissions for Windows host

- 1. The following steps will be performed at the Windows host that will access a volume on the storage.
- 2. On the Start menu click Administrative Tools > iSCSI Initiator.
- 3. In the configuration tab, locate the Initiator name field and copy the contents.

	Discoveru	Eaucrito	Targeto	Volumes and Douisso
DADTUS	Discovery	pfiguration		Dell Fauel agis MDIO
RADIUS		Ingeración		Dell Equalcogic MPTO
Configuration si the initiator. Any existing coi the initiator oth When connectir particular conne	ettings here are g nnections may cor erwise tries to rec ng to a target, adv ection.	lobal and will affe ntinue to work, b onnect to a targ vanced connectic	ect any future ut can fail if tl at. n features al	e connections made with ne system restarts or low specific control of a
Initiator Name:	1943			
sra-10gb-w2k.	2			
To modify the in	itiator name, click	Change.		-
	ildator name, tick	. change:		Change
To set the initia click CHAP.	tor CHAP secret fo	or use with mutu	al CHAP,	CHAP
To set up the IF click IPsec.	Psec tunnel mode a	addresses for the	e initiator,	IPsec
To generate a r	eport of all conne k Report.	cted targets and	devices on	Report
ule system, die				
More about Cor	nfiguration			
More about Cor	nfiguration			
More about Cor	figuration			



- 4. The following steps should be performed from the Group Manager web application.
- 5. The next screen image illustrates how to use the iSCSI initiator name to limit iSCSI access.

Create volume	×
Step 3 - ISCSI Access	3
iSCSI access Ng access Restricted access Limit access by IP address (asterisks allowed): Limit access to ISCSI initiator name: sra-10gb-w2k12 Access type Paste iSCSI initiator name here. Set read-write Set read-write Allow simultaneous connections from initiators with different IQNs Allow only if your environment can safely handle multiple initiators accessing the	target.
Seack Next >	inish 🔀 Cancel

Tip: Use this screen to edit initiator names for existing volumes.

If you need to allow simultaneous connections from initiators with different IQN names, check the box in **Access** type.

Note: This is usually only necessary if the Windows node will be part of a failover cluster.



6 Configure iSCSI – target discovery

To configure the host for iSCSI and target discovery, use the remote setup wizard as described in this section.

- 1. Open the Remote Setup Wizard by clicking **Start > Remote Setup Wizard**.
- 2. Chose **Configure PS Group Access** as shown. Auto-Snapshot Manager will be loaded automatically.





3. Click Add PS Group.

🖸 Dell EqualLogic Auto-Snapshot Manager			
<u>F</u> ile <u>V</u> iew		Launch	<u>C</u> ustomize <u>H</u> elp
🔶 Back 🔿 Forward 💠 Add Hosts 😔 Refresh All Hosts			🛞 Collect <u>L</u> ogs
Settings «	🚽 sra-10gb-w2k12	PS Group Access	27
General Settings			Add PS Group
Notification Settings			Delete PS Group
Alert Settings			Copy To All
Verification Settings			
PS Group Access			
身後 MPIO Settings			
Hosts (1)		You can store different credentials that allow this host to access a PS Group and perform operations related to Microsoft services, such as Virtual Disk Service (VDS) and Volume Shadow Copy Service (VSS).	
Settings	1 Host Selected	Discard	Save
😸 0 Errors + 🔥 1 Warning -			

4. Enter the group name and in-band group IP address, as shown below. Click **Save** and then close the window.



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7 Configure MPIO settings

- 1. Open the Remote Setup Wizard by clicking Start > Remote Setup Wizard.
- 2. Select the option to Configure MPIO Settings. Auto-Snapshot Manager will be loaded automatically.
- 3. In the **MPIO Settings** screen, exclude any network not used for iSCSI SAN traffic (for example, the client LAN or management network). Click **Save** and then close the window.





8 Configure volume access

- 1. Open the iSCSI Initiator on a Windows host machine by clicking **Start > Administrative Tools > iSCSI Initiator**.
- 2. Click the **Targets** tab to view the iSCSI target for the volume created on the array member.
- 3. Click **Refresh** to rescan the ISCSI targets.
- 4. Select a target to connect to and click **Connect**.
- Click OK to confirm the connection. Repeat steps 4 and 5 of "Volume access" for the remaining volumes.
- 6. Click **OK** to close the iSCSI initiator properties.
- 7. In the Start menu select Administrative Tools > Server Manager.
- 8. Click File and Storage Services > Volumes > Disks.
- 9. Right click the new disk (offline) and choose Bring Online.
- 10. Right click the disk again and choose New Volume.
- 11. Follow the **New Volume Wizard** to create a volume, assign it a drive letter or folder, and then format it with a file system.

