

# Windows Server 2008 R2 and Hyper-V 2008 Host Configuration

Rapid EqualLogic Configuration Series Implementation Guide

January 2015

# Revisions

| Date          | Status   |
|---------------|--|
| April 2012    | Initial release  |
| May 2012      | Updated the Intel NIC driver version and EQL host installation kit for Windows version 4.0.0 |
| December 2012 | Combined part 1 and part 2 into single guide   |
| March 2013    | Added Hyper-V 2008 content   |
| January 2015  | Minor updates  |

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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 2008 Server, go to: <u>http://technet.microsoft.com/en-us/library/cc794929(v=ws.10).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<sup>®</sup> 2008 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<sup>®</sup> network adapters (NICS) for SAN connectivity, proceed to "Download 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**.
- In the Drivers and Downloads menu, select Drivers Home.
   If the support site has detected a product to support, click Change Your Product.
- 3. In the Choose a Model section, click Select a Model.
- 4. Select Servers, Storage, Networking from the Select Your Product Family list, and PowerEdge Server from the Select Your Product Line list.
- 5. Select your host server platform (i.e. Dell<sup>™</sup> PowerEdge<sup>™</sup> R610, etc.) from the **Select Your Product Model** list, and then click **Confirm**.
- 6. In the **Refine Your Results** window, select **Windows Server 2008 R2** for the **Operating System**, and **Network** as the **Category**.

| ategory | Importance |   |
|---------|------------|---|
| Network | ✓ All      | ~ |

 Download the recent version of the Intel driver package for Intel NIC drivers for Windows Server 2008 x64, Windows Server 2012, Windows 7 x64, and Windows 8.1 x64 Intel NIC drivers for Windows Server 2008 x64, Windows Server 2012, Windows 7 x64, and Windows 8.1 x64. Download version 16.0.0 or later.



Operating System: MS Windows 2008 R2 
Change OS

### 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 click **Next**.

| Intel(R) Network Connections Install ¥  | Vizard    |        | ×       |
|---|-----------|--------|---------|
| Setup Options<br>Select the program features you want i   | nstalled. |        | (intel) |
| Install:<br>Drivers<br>Intel(R) PROSet for Windows* Dev<br>Advanced Network Services<br>FCoE using Data Center Bridgin<br>iSCSI using Data Center Bridgin<br>Intel(R) Network Connections SNM | ng        |        |         |
| Feature Description   |           |        |         |
|   | < Back    | Next > | Cancel  |

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



### 1.3 Configure the Intel network adapters (NICS)

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

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 Download 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 the previous section 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.
- In the Drivers and Downloads menu, select Drivers Home.
   If the support site has detected a product to support, click Change Your Product.
- 3. In the Choose a Model section, click Select a Model.
- 4. Select Servers, Storage, Networking from the Select Your Product Family list, and PowerEdge Server from the Select Your Product Line list.
- 5. Select your host server platform (i.e. Dell PowerEdge R610, etc.) from the **Select Your Product Model** list, and then click **Confirm**.

6. In the **Refine Your Results** window, select **Windows Server 2008 R2** for the **Operating System**, and **Network** as the **Category**.

| Category | Importance |   |
|----------|------------|---|
| Network  | V All      | ~ |

Operating System: MS Windows 2008 R2 Change OS

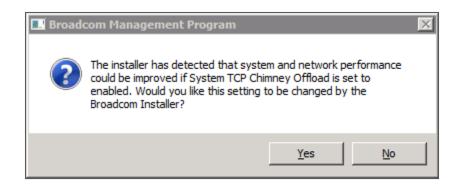
7. Download the most recent version of the Broadcom driver package for "NetXtreme II Family of Adapters". Download version 16.2.1 or later.

### 1.5 Install the Broadcom driver update

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

| 🔂 Broadcom Drivers and Management Applications -                       | InstallShield Wizard 🛛 🗙  |
|--|---|
| <b>Custom Setup</b><br>Select the program features you want installed. |   |
| Click on an icon in the list below to change how a feature is in       | stalled.  |
| Control Suite<br>SNMP<br>CIM Provider<br>CIM Provider<br>BASP          | Feature Description<br>This will install Broadcom Drivers<br>and Management Applications<br>This feature requires 3010KB on<br>your hard drive. |
| InstallShield  |   |
| Help < Back  | Next > Cancel   |

3. If the installation procedure prompts to enable System TCP Chimney Offload, select No.



## 1.6 Configure Broadcom NIC device settings using BACS

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

| Hosts<br>Hosts<br>WIN-M4SGQM2U7NV<br>Horizont Adapter1<br>Horizont Adapter2 (BCM578 |              | Property  |                       |            | Value  |                       |
|---|--------------|---|-----------------------|------------|--|-----------------------|
| 🗄 🔙 Adapter1  |              | the second se |                       |            | T YOIGO  |                       |
|   | 10           | - Advanced  |                       |            |  |                       |
| 🕂 📑 Adapter2 (BCM578  |              | Set Pro   | operties to Default V | /alues     |  | Set to default values |
|   | 10 BO)       | Flow C  | ontrol                |            | Rx & Tx Enabled  |                       |
| 🚊 🚽 Port0   |              | Interru   | upt Moderation        |            | Enabled (default)  |                       |
| 🖨 📆 [0130] Bro  | adcom BCM578 | - Jumbo   | Packet                |            | 9000   |                       |
|   | Broadcom BCI | Large S   | Send Offload Version  | n 1 (IPv4) | Enabled (default)  |                       |
| 庄 🛶 Port1   |              | - Large S   | Send Offload Version  | n 2 (IPv6) | Enabled (default)  |                       |
| 🗄 🔙 Adapter3  |              | Locally   | Administered Addre    | ess        | Not present  | Edit                  |
| 🗄 🛒 Adapter4  |              | - Numbe   | er of RSS Queues      |            | Auto (default)   |                       |
|   |              | Pause   | On Exhausted Host     | Ring       | Disabled (default)   |                       |
|   |              | Priority  | / & VLAN              |            | Priority & VLAN enabled  | (default)             |
|   |              | Receiv  | e Buffers (0=Auto)    | ŝ          | 0 (default)  |                       |
|   |              | Receiv  | e Side Scaling        |            | Enabled (default)  |                       |
|   |              |   | he selected adapter.  |            | view and change the value<br>available properties and l<br>Reset |                       |

- 1. On the left pane, click on the NIC port.
- 2. On the right pane, click the **Configurations** tab.
- 3. Perform the following steps on each NIC port connected to the SAN network.



a. Leave all values at default except for the following:

| Option       | Value           |
|--------------|-----------------|
| Flow control | Rx & Tx Enabled |
| Jumbo MTU    | 9014            |

b. Click Apply to save the changes.

c. Exit Broadcom Advanced Control Suite.



# 2 Configure networking

# 2.1 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).

| 🖣 Local Area Connec  | tion 7 Properties  | ×                                     |
|--|--|---------------------------------------|
| Networking Sharing   |  |                                       |
| Connect using:   |  |                                       |
| 🔮 Broadcom BCM   | 157810 Net⊠treme II 10   | GigE (NDIS VBD C                      |
|  |  | Configure                             |
| This connection uses   | the following items:   |                                       |
| <ul> <li>→ Microsoft Virt</li> <li>→ Internet Prote</li> <li>✓ Internet Prote</li> <li>✓ A Internet Prote</li> <li>→ Link-Layer T</li> </ul> |  | tocol<br>/6)<br>/4)<br>per I/O Driver |
| Install  | Uninstall  | Properties                            |
| wide area network  | ol Protocol/Internet Prot<br>protocol that provides c<br>connected networks. |                                       |
|  | 0  | IK Cancel                             |

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 advanced settings properties, open the **WINS** tab and uncheck **Enable LMHOSTS lookup** and choose **Disable NetBIOS over TCP/IP** as the NetBIOS setting.

| Advanced TCP/IP Settings   | X |
|--|---|
| IP Settings DNS WINS   |   |
| WINS addresses, in order of use:   |   |
| t<br>J   |   |
| Add Edit Remove  |   |
| If LMHOSTS lookup is enabled, it applies to all connections for which TCP/IP is enabled.   |   |
| Enable LMHOSTS lookup Import LMHOSTS   | 1 |
| NetBIOS setting<br>C Default:<br>Use NetBIOS setting from the DHCP server. If static IP address<br>is used or the DHCP server does not provide NetBIOS setting,<br>enable NetBIOS over TCP/IP. |   |
| C Enable NetBIOS over TCP/IP   |   |
| Disable NetBIOS over TCP/IP  |   |
|  | - |
| OK Cancel  |   |

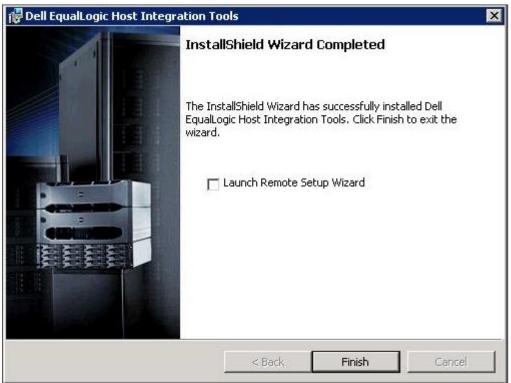
4. Repeat the steps above to configure and optimize each NIC port to be used for SAN connectivity.



# 3 Install EQL HIT kit

Download the latest Host Integration Tools kit from <u>https://support.equallogic.com/secure/login.aspx</u>. In Windows Explorer, double click the downloaded file to 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**.



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

| 🙀 Dell E | qualLogic Host Integrati | on Tools Installer Informa  |
|----------|--------------------------|---|
| 0        | changes made to Dell Equ | stem for the configuration<br>JalLogic Host Integration Tools<br>o restart now or No if you |
|          | Yes                      | No  |



# 4 Configure the 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 the storage

#### 5.1 Configure the 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

The following steps will be performed at the Windows host that will access a volume on the storage.

- 1. On the Start menu click Administrative Tools > iSCSI Initiator.
- 2. In the **configuration** tab, locate the **Initiator name** field and copy the contents.

| Targets                              | Discovery   | Favorite Ta       | rgets        | Volumes an       | d Devices |
|--------------------------------------|---|-------------------|--------------|------------------|-----------|
| RADIUS                               | Config  | juration          | E            | Dell EqualLogic  | : MPIO    |
| he initiator.<br>Any existing conr   | tings here are globa<br>nections may continu<br>rwise tries to reconn | ue to work, but ( | •            |                  |           |
| When connecting<br>particular connec | ) to a target, advan<br>tion.   | ced connection f  | eatures allo | w specific contr | rol of a  |
| nitiator Name:                       |   |                   |              |                  |           |
| gn.1991-05.com                       | m.microsoft:server1   |                   |              |                  |           |
| o modify the init                    | tiator name, click Ch   | ange.             |              | Chang            | e         |
| o set the initiato<br>lick CHAP.     | or CHAP secret for u  | ise with mutual C | HAP,         | CHAP             | ·         |
| 'o set up the IPs<br>lick IPsec.     | ec tunnel mode add  | resses for the in | itiator,     | IPsec            |           |
| o generate a re<br>he system, click  | port of all connecter<br>Report.                                      | d targets and de  | vices on     | Repo             | ort       |
| More about Conf                      | iguration   |                   |              |                  |           |
|                                      |   |                   |              |                  |           |



3. The next screen image illustrates how to use the iSCSI initiator name to limit iSCSI access.

| Create volume         | E  | × |
|-----------------------|--|---|
| Step 3 - iSCSI Access |  |   |
|                       | iSCSI access <ul> <li>Ng access</li> <li>Restricted access</li> <li>Authenticate using CHAP user name:</li> <li>Limit access by P address (asterisks allowed):</li> <li>Limit access to i§CSI initiator name:</li> <li>Ign.1991-05.com.microsoft:server1</li> </ul> <li>Access type         <ul> <li>Paste iSCSI initiator name here.</li> <li>Set read-write</li> <li>Set read-write</li> <li>Set read-only</li> <li>Allow sinultaneous connections from initiators with different IQN names</li> <li>Allow only if your environment can safely handle multiple initiators accessing the target.</li> </ul> </li> |   |
|                       | K Back Next > Finish X Cancel  |   |

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

4. 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** > **All Programs** > **EqualLogic** > **Remote Setup Wizard**.
- 2. Chose **Configure this computer to access a PS Series SAN**, as shown, and then click **Next**.

| 😑 Remote Setup Wiza | ard   | × |  |  |  |  |
|---------------------|---|---|--|--|--|--|
|                     | Welcome to the Remote Setup Wizard  |   |  |  |  |  |
|                     | This wizard enables you to initialize one or more PS Series arrays and create or<br>expand a PS Series group (SAN). You can also configure this computer to<br>access a PS Series SAN or use EqualLogic MPIO. |   |  |  |  |  |
|                     | Note: The computer must be connected to the same Ethemet segment as the<br>array, and Layer 2 multicasting must not be blocked between the server and<br>array.   |   |  |  |  |  |
|                     | <ul> <li>Initialize a PS Series array</li> <li>Configure this computer to access a PS Series SAN</li> </ul>   |   |  |  |  |  |
|                     | C Configure MPIO settings for this computer   |   |  |  |  |  |
|                     | < Back Next > Cancel  | _ |  |  |  |  |

3. Click Add Group.

| 😑 Remote Setup Wiza | ard X  |  |  |  |  |
|---------------------|--|--|--|--|--|
|                     | Configure this computer to access the SAN  |  |  |  |  |
|                     | You can store CHAP credentials that allow this computer to access a PS Series<br>group and perform operations related to Microsoft services, such as Virtual Disk<br>Service (VDS) and Volume Shadow Copy Service (VSS). |  |  |  |  |
|                     | Groups accessible from this computer:  |  |  |  |  |
|                     | Add Group  |  |  |  |  |
|                     | Modify Group   |  |  |  |  |
|                     | Remove Group   |  |  |  |  |
|                     |  |  |  |  |  |
|                     | Launch Microsoft Storage Manager for SANs upon exit to create a volume   |  |  |  |  |
|                     |  |  |  |  |  |
|                     | <back next=""> Finish</back>   |  |  |  |  |
|                     |  |  |  |  |  |



4. Enter the group name and in-band group IP address. Click **Save** and then **Finish**.

| Add or Modify Group Info                     | X |
|--|---|
|  |   |
| Group name: group1                           |   |
| Group IP address: 10.10.10.110               |   |
| CHAP credentials for VDS/VSS access to group |   |
| User name:                                   |   |
| Password:                                    |   |
| Use CHAP credentials for iSCSI discovery     |   |
| More Information                             |   |
| CHAP credentials for access to Smart Copies  |   |
| User name:                                   |   |
| Password:                                    |   |
| Save Cancel                                  |   |



# 7 Remote setup wizard to configure host MPIO settings

- 1. Open the remote Setup wizard by clicking **Start > All Programs > EqualLogic > Remote Setup Wizard**.
- 2. Select the radio button for **Configure MPIO settings for this computer** and click **Next**.

| 🕂 Remote Setup Wiza | rd  | × |  |  |  |
|---------------------|---|---|--|--|--|
|                     | Welcome to the Remote Setup Wizard  |   |  |  |  |
|                     | This wizard enables you to initialize one or more PS Series arrays and create or<br>expand a PS Series group (SAN). You can also configure this computer to<br>access a PS Series SAN or use EqualLogic MPIO. |   |  |  |  |
|                     | Note: The computer must be connected to the same Ethemet segment as the<br>array, and Layer 2 multicasting must not be blocked between the server and<br>array.   |   |  |  |  |
|                     | <ul> <li>Initialize a PS Series array</li> <li>Configure this computer to access a PS Series SAN</li> </ul>   |   |  |  |  |
|                     | <ul> <li>Configure MPIO settings for this computer</li> </ul>   |   |  |  |  |
|                     | < Back Next > Cancel  |   |  |  |  |

3. In the **Configure MPIO settings for this computer** screen, exclude any network not used for iSCSI SAN traffic (for example, the client LAN or management network). Click **Finish**.

| Remote Setup Wiza | rd   | × |
|-------------------|--|---|
|                   | Configure MPIO settings for this computer  |   |
|                   | Subnets included for MPIO         Subnets excluded from MPIO           10.10.10.0 - 255.255.255.0         Exclude >>   |   |
|                   | O Fail Over Only     O Least Queue Depth     O Round Robin   |   |
|                   | Max sessions per volume slice:       2       Image: Use MPIO for snapshots         Max sessions per entire volume:       6       Image: Use IPv4       Image: Use IPv6         Minimum adapter speed:       1       Gbps       Image: Use IPv6 |   |
|                   | < <u>Back</u> Next> Finish   | - |



# 8 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**.

| SI Initiator Pro                | perties                                     |                    |            |         |               | 2          |
|---------------------------------|---|--------------------|------------|---------|---------------|------------|
| RADIUS                          | Config                                      | guration           | 1          | 👌 De    | ll EqualLog   | c MPIO     |
| Targets                         | Discovery                                   | Favorite Ta        | Irgets     | Ī       | Volumes ar    | nd Devices |
|                                 | log on to a target (                        |                    |            | type ti | he IP addre   | ss or      |
| DNS name of the                 | target and then c                           | lick Quick Conne   | ct.        |         |               |            |
| Target:                         |   |                    |            |         | Quick C       | onnect     |
| Discovered targe                | ts  |                    |            |         |               | 1          |
|                                 |   |                    |            |         | <u>R</u> ef   | resh       |
| Name                            |   |                    |            | Stat    | us            |            |
| iqn.2001-05.co                  | m.equallogic:0-8a0                          | 906-52235a40a      | -9e40      | Inac    | tive          |            |
| To connect using click Connect. | advanced options                            | ;, select a target | and ther   | 1       | Con           | nect       |
|                                 | sconnect a target,<br>nect.                 | select the targe   | t and      |         | Disco         | nnect      |
|                                 | rties, including con<br>and click Propertie |                    | sions,     |         | Prope         | rties      |
| For configuration               | n of devices associa                        | stad with a taxa   |            |         |               |            |
|                                 | nen click Devices.                          | aceu wich a cargo  | et, select |         | De <u>v</u> i | ces        |
| the target and t                |   |                    | et, select |         | De <u>v</u> i |            |



5. Click **OK** to confirm the connection.

Repeat steps 4 and 5 of "Volume access" for the remaining volumes.

| Connect To Target   | ×                  |
|---|--------------------|
| Target name:<br>.com.equallogic:0-8a0906-c899faa0a-620d2ef  | cf044e36c-volume3  |
| Add this connection to the list of Favorite Ta<br>This will make the system automatically atten<br>connection every time this computer restarts | npt to restore the |
| 厅 Enable multi-path   |                    |
| <u>A</u> dvanced  | OK Cancel          |

- 6. Click **OK** to close the iSCSI initiator properties.
- 7. Open Start > Administrative Tools > Server Manager.
- 8. Click Storage > disk management.
- 9. Right click the new (unknown) disk and choose **online**.

| Server Manager                 |   |   |            | _ 🗆 🗙       |
|--------------------------------|---|---|------------|-------------|
| File Action View Help          |   |   |            |             |
| 🗢 🔿 🔰 🖬 📓                      |   |   |            |             |
| Server Manager (WIN-J96I6NMN3T | Disk Managemer                                    | t Volume List + Graphical View  |            | Actions     |
| <ul> <li></li></ul>            | Volume  | Layout Type File System Status  | Caj        | Disk Mana 🔺 |
| Diagnostics     Configuration  | C:)   | Simple Basic NTFS Healthy (Boot, Page File, Crash Dump, Primary Partition)<br>Simple Basic NTFS Healthy (System, Active, Primary Partition)                                   | 136<br>10( | More 🕨      |
| E Storage                      | <b>▲</b>  |   |            |             |
| 🛛 🐌 Windows Server Backup      | Disk 0  |   | =1         |             |
| 📑 Disk Management              | Basic<br>136.12 GB<br>Online                      | System Reserved         (C:)           100 MB NTF5         136.03 GB NTF5           Healthy (System, Activi)         Healthy (Boot, Page File, Crash Dump, Primary Partition) |            |             |
|                                | Disk 1  |   |            |             |
|                                | Unknown<br>100.00 GB<br>Offline ()<br><u>Help</u> | 100.00 GB<br>Unallocated  |            |             |
|                                | DVD (D:)  |   |            |             |
|                                | No Media  |   |            |             |
|                                |   |   | _          |             |
|                                |   |   |            |             |
|                                | Unallocated                                       | Primary partition   |            |             |
|                                |   |   |            |             |



- 10. Right click the new (uninitialized) disk and choose Initialize Disk.
- 11. Choose MBR or GPT (for volumes greater than 2TB in size) and then click **OK**.
- 12. Right click on the unallocated volume and choose **Simple Volume**. Follow the steps in the wizard to create a partition and format the volume for Windows.

| 📕 Server Manager   |                             |   |           |   |  |     |             |
|--|-----------------------------|---|-----------|---|--|-----|-------------|
| File Action View Help  |                             |   |           |   |  |     |             |
|  |                             |   |           |   |  |     |             |
| Server Manager (WIN-J9616NMN3T   Roles  Features             | Disk Managemer              | <b>it</b> Volume List + G               | Graphical | View  |  |     | Actions     |
|  | Volume                      | Layout Type                             | File Syst | em Status                                   |  | Caj | Disk Mana 🔺 |
| Teacures     Teacures     Teacures     Teacures     Teacures | 🗀 (C:)                      | Simple Basic                            | NTFS      | Healthy (Boot, Pag                          | e File, Crash Dump, Primary Partition) | 136 | More 🕨      |
| E R Configuration  | System Reserve              | d Simple Basic                          | NTFS      | Healthy (System, A                          | ctive, Primary Partition)              | 100 |             |
| 🖃 🚟 Storage  | •                           |   |           |   |  |     |             |
| Windows Server Backup  | Disk 0                      |   |           |   |  |     |             |
| Disk Management  | Basic                       | System Reserv                           |           | (C:)  |  |     |             |
|  | 136.12 GB<br>Online         | 100 MB NTFS<br>Healthy (System,         |           | 136.03 GB NTFS<br>Healthy (Boot - Page File | , Crash Dump, Primary Partition)       |     |             |
|  | 0.11110                     |   | , Heavi   | ricality (boot) rage rile                   | , crash banp, minary raradony          |     |             |
|  |                             |   | 1         |   |  |     |             |
|  | Basic                       | 2////////////////////////////////////// |           |   |  |     |             |
|  | 100.00 GB                   | 100.00 GB                               |           | Simple Volume                               |  |     |             |
|  | Online                      | Unallocated                             |           | Spanned Volume<br>Striped Volume            |  |     |             |
|  |                             |   |           | Mirrored Volume                             |  | -   |             |
|  | <b>CD-ROM 0</b><br>DVD (D:) |   |           | RAID-5 Volume                               |  |     |             |
|  |                             |   | Prop      | erties                                      |  |     |             |
|  | No Media                    |   |           |   |  |     |             |
|  |                             |   | Help      |   |  |     |             |
|  |                             |   |           |   |  |     |             |
|  |                             |   |           |   |  |     |             |
|  | Unallocated                 | Primary partiti                         | ion       |   |  |     |             |
|  |                             |   |           |   |  |     |             |

