Quest™

DR2000v (Version 4.0.3)

Deployment Guide

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About the DR2000v Deployment Guide

The DR2000v Deployment Guide provides instructions for deploying the DR2000v, a virtual DR Series system. This guide contains topics that explain how to deploy the DR2000v system in your environment.

Other information you may need

The following table lists the documentation available for the DR Series systems. The documents listed in this table are available on the Quest support website by selecting your specific DR Series system model at:

http://support.quest.com/DR-Series

For more information about the DR Series system hardware, see the safety and regulatory information that shipped with your DR Series system. Warranty information might be included as a separate document.

Document	Description
DR Series System Getting Started Guide	Provides an overview of how to set up the physical DR Series system hardware and includes technical specifications.
DR Series System Owner's Manual	Provides information about applicable physical DR Series system features, troubleshooting the DR Series system, and installing or replacing the DR Series system components.
DR2000v Deployment Guide	Provides information about deploying the virtual DR Series system, DR2000v, on supported virtual platforms.
DR Series System Administrator Guide	Provides information about managing backup and replication operations using the DR Series system GUI.
DR Series System Interoperability Guide	Provides information on supported hardware and software for the DR Series systems.
DR Series System Command Line Reference Guide	Provides information about managing DR Series system data backup and replication operations using the DR Series system command line interface (CLI).
DR Series System Release Notes	Provides the latest information about new features and known issues with a specific product release.

> **i** NOTE: You should check for the latest documentation updates and release notes at support.quest.com/dr-series, and read the release notes first because they contain the most recently documented information about known issues with a specific product release.

Getting started

This chapter provides an introduction to the DR2000v system and describes specifications, usage notes, and other important information that you need before you begin to deploy your system. It includes the following topics:

- **Introducing the DR2000v**— provides an introductory description of the DR2000v.
- **Specifications and Usage Notes for the DR2000v** — provides important information about licensing and usage for the DR2000v.
- **NIC Drivers and Settings** — provides important information about NIC driver updates for your hypervisor host and NIC settings for the DR2000v.
- **Setting up Licensing for the DR2000v**— provides important information about how to set up your license on the DR2000v.

Introducing the DR2000v system

The DR2000v is a virtual DR Series system that provides backup and disaster recovery (DR) features such as deduplication, compression, replication, and advanced data protection. This virtual appliance runs inside a virtual machine (VM) on a VMware ESXi or Microsoft Hyper-V server. The DR2000v uses storage disks resident in the hypervisor server on which it is loaded. The DR2000v virtual machine (VM) template is available in various licensed capacities that can be deployed on your existing VM infrastructure. Backup/restore performance using the DR2000v is dependent on the performance of your underlying hardware.

Specifications and notes for using the DR2000v

This section describes special notes on usage, licensing information, GUI usage limitations, and latest driver downloads for the DR2000v system.

> **i** NOTE: For detailed information about supported virtual machine platforms and versions, platform configuration limits, virtual infrastructure and memory requirements, and other related system information, see the DR Series System Interoperability Guide.

Virtual Tape Library

Virtual Tape Library (VTL) support is available on the DR2000v in demo mode for trial and proof of concept only. To learn more about this functionality, contact your sales representative to request a VTL demo license for the DR2000v. To download the trial version, visit the following link: https://www.quest.com/products/dr2000v-virtual-backup-appliance/software-downloads.asp

Licensing

The DR2000v uses a standalone license.

> **i** NOTE: The DR2000v 30-day trial version does not require a license to be installed on a DR Series hardware system for operation.

DR2000v Hyperscale licensing

VM Hyperscale licenses are deployed on the DR Series appliance to support and maintain multiple virtual DR2000v appliances that are licensed by a single DR Series hardware system. A DR Series hardware system can support up to 3,000 virtual machines.

i | NOTE: A DR Series hardware system with a Hyperscale license can function as a regular DR Series system.

For more information on DR2000v license limits, see the DR Series System Interoperability Guide. For more information about DR2000v Hyperscale licensing, contact your sales representative or Quest support.

DR2000V VM cloning and importing/exporting

When cloning or importing/exporting a VM, a cloned VM requires a new license. Contact Quest support for assistance.

DR Series system GUI usage

Refer to the following notes about GUI usage specific to the DR2000v.

- You should not change the MTU setting for the DR2000v but should leave the setting at the system default of 1500.

- The DR Series system GUI Usage menu displays only statistics related to DR2000v; no underlying hosting virtual machine platform information is available through this menu.

- DR Series system alerts and events are applicable only to DR2000v; no underlying hosting virtual machine platform alerts/events are handled.

- The DR2000v system is a Global View-managed unit, which means it can be added to the Global View of your DR Series hardware system.

- Hardware Health is not displayed in the GUI for the DR2000v as this is managed via the hosting platform.

NIC drivers and settings

Refer to the following topics for important information about NIC driver updates for your hypervisor host and NIC settings for the DR2000v.

Hyervisor host NIC driver updates for VMQ

Before deploying the DR2000v, you may need to update certain hypervisor host NIC drivers to support the VMQ feature. Check your Hypervisor host NIC feature list and update the driver to the latest version as needed. For example, you should update the Broadcom NetXtreme I and NetXtreme II Ethernet adapter driver to 17.6.0 (or later) to add VMQ support; otherwise, you might experience performance degradation during normal operations. Refer to the following links for downloading:

- Driver for NetXtreme I and NetXtreme II Ethernet adapter:

    http://www.dell.com/support/home/us/en/19/Drivers/DriversDetails? driverId=CYKKJ&osCode=MWS80&fileId=3197327398&languageCode=EN&categoryId=NI

- Firmware for NetXtreme I and NetXtreme II Ethernet adapter:

    http://www.dell.com/support/home/us/en/19/Drivers/DriversDetails? driverId=P32M4&osCode=MWS80&fileId=3197328666&languageCode=EN&categoryId=NI

DR2000v NIC settings

The DR2000v is designed to work with two virtual NICs. Internally, the DR2000v bond's both the NICs to be Transmit Load Balancing (TLB), which requires the eth-0 MAC address for the ethernet traffic. For the DR2000v appliance to work properly, you should ensure the following settings:

1. Ensure that the eth-0 NIC is always connected to a valid Hypervisor Virtual Switch topology.
2. Ensure that eth-0 line is always up and running.
3. Enabling the eth-1 is optional, but if you enable it:
    a. Ensure the virtual switch settings **MAC address changes** and **Forged Transmits** are set to **Accept**, if you are planning to use eth-1 in an ESXi hypervisor environment.
    b. Ensure the eth-1 interface is not connected if you do not have the administrator privileges.
4. If you are making any network setting changes on your hypervisor, execute the `stats -network` CLI command to list all the NIC ports status, especially with the Rx/Tx counts.
5. If the eth-1 "Rx" counters are not getting incremented, but the "Tx" counters are getting incremented, then you might have a problem with your switch settings, where the return traffic is getting dropped by your Hypervisor vSwitch. To resolve this, see Step 3 above.

Setting up licensing for the DR2000v

The DR2000v uses a standalone license. For more information about licensing, see the topic, Specifications and notes for using the DR2000v. For information about licensing limits for the DR2000v, see the DR Series System Interoperability Guide.

> **i** NOTE: The DR2000v 30-day trial version does not require a license to be installed for operation. If you will be deploying a trial version of the DR2000v, see the topic "Deploying the DR2000v Trial Version" later in this guide for detailed instructions.

Installing a license for the DR2000v

Before you begin, refer to these important notes about installing standalone licenses for the DR2000v:

- **Evaluation license** - If you install a standalone license on a DR2000V on which an evaluation license is already installed, the evaluation license will be deleted.
- **License expiration** - A standalone license has no expiration and remains valid for the lifetime of the virtual machine (VM) unless explicitly enforced in future software upgrades, and no other license can be installed above this perpetual license.
- **DR2000v RM Recovery/Restore** - A standalone license in not recovered in the case of RM recovery/ Restore. You would therefore need to reinstall the old license.

Follow these steps to install the DR2000v license.

1. Open a web browser and enter the DR2000v IP address to access the DR Series system GUI.
2. Enter the default credentials to log on: Username: administrator, Password: St0r@ge!
3. Navigate to the GlobalView page.
4. On the GlobalView page, view and record the service tag of the DR2000v for which you want to install a standalone license (this service tag would have been added for the trial period for the DR2000v, and this service tag is required for acquiring the standalone license from the support team).
5. Contact the Technical Support team with the service tag number to acquire the new standalone license (.dlv) file, and then store the file somewhere on your system or network for uploading to your DR Series system.

6. Once you have obtained the new license file, navigate to **System Configuration > Licenses** in the GUI.
7. Click the **Select License File** button.
8. Upload the license .dlv file, and click **Install**. A success alert appears and the service tag changes when the file has been successfully uploaded.
9. To view the new service tag, go back to the GlobalView page and look for the service tag for the DR2000v.

Deploying the DR2000v on VMware ESXi

This topic provides information about deploying the DR2000v on VMware ESXi.

For detailed information about supported VMware ESXi versions, platform and license limits, virtual infrastructure and memory requirements, and other information, see the DR Series System Interoperability Guide.

The deployment process comprises the following tasks:

1. Deploying the DR2000v via one of the following:

   ◦ Using the vSphere Client

   ◦ Using the vSphere Web Client

   > **i** NOTE: The security policy for vSwitches in VMware environments should be configured to allow MAC Address Changes, this can be achieved by enabling the Allow **MAC Address changes** and **Forged Transmits** option in the Layer-2 security policies of the vSphere vSwitches. To edit the Layer 2 security policies of vSphere vSwitches, navigate to **Security Policy settings** and set the value for the **MAC Address Changes** and **Forged Transmits** to **Accept**. For more information about security, see the vSphere Security documentation.

2. Setting up and configuring the DR2000v.

Deploying the DR2000v using the vSphere Client

The following instructions describe the steps for deploying the DR2000v on VMware ESXi using the vSphere client.

1. Acquire the DR2000v installation package and store it on your system or a network location. This package is in **VMware ESXi ova** format.

2. Launch the vSphere client, and log on to the vCenter server or the ESX host.(If you are using ESXi version 5.5, use the Web client, since the vSphere client does not work with 5.5. See the topic, "Deploying DR2000v using the vSphere Web Client," for more information about deploying using the Web client.)

3. In the vCenter management console, highlight the ESX host that will be hosting the VM, and then select **File > Deploy OVF Template**.

4. In the Deploy OVF Template - Source dialog box, click **Browse**.

5. Browse to the location of the DR2000v .ova package on your system or network, select it, and click **Open**.

6. In the Deploy OVF Template - Source window, click **Next**.

7. In the Deploy OVF Template - OVF Template Details dialog box, click **Next**.

8. In the Deploy OVF Template - Name and Location dialog box, enter the Virtual Machine (VM) name and click **Next**.

9. In the Deploy OVF Template – Storage dialog box, choose a data store that meets the storage space requirement (with minimum free space of at least the size the of the DR2000v system), and then click **Next**.

10. In the Deploy OVF Template - Disk Format dialog box, choose a storage provisioning method, and then click **Next**.

    Note that selecting thin provisioning will require the space to be allocated as needed and may result in additional performance impact.

11. In the Deploy OVF Template — Ready to Complete dialog box, review the deployment information, select **Power on after deployment**, and click **Finish**.

    If the network setting does not default to the network you want, you might have to edit the network mapping after this setup.

    A dialog box appears to show progress of the deployment process.

12. In the Deployment Completed Successfully dialog box, click **Close**.

    The DR2000v will boot up. (It takes approximately 3-5 minutes to self-extract the installation package and install all of the components.)

13. Proceed with the initial setup and configuration of the DR2000v. Refer to the topic, "Setting up and Configuring the DR2000v," for instructions.

Deploying the DR2000v using the vSphere Web Client

The following instructions describe the steps for deploying the DR2000v on VMware ESXi using the vSphere web client.

1. Acquire the DR2000v installation package and store it on your system or a network location. This package is in **VMware ESXi ova** format.

2. Launch and log on to the vSphere Web Client.

3. Right-click the ESXi host that will host the DR2000v, and select **Deploy OVF Template**.

4. In the Deploy OVF Template - Source window, click **Browse** to locate the DR2000v .ova template on your system or network location, and click **Open**.

5. Click **Next** to proceed.

6. Review details in the **Deploy OVF Template** dialog box, and then click **Next** to proceed.

7. In the **Deploy OVF Template** – Select Name and Folder dialog box, enter a Name for the virtual machine and select the folder that hosts it, and then click **Next** to proceed.

8. In the **Deploy OVF Template** – Select Storage dialog box, select the virtual disk format and the destination datastore, and then click **Next** to proceed. You must choose a data store that meets the storage space requirement (with minimum free space of at least the size the of the DR2000v system).

    It is recommended that you select the setting, **Thick Provision Eager Zeroed**, which will result in ESX Physical CPU Usage until the storage is allocated and zeroed. (Selecting **Thin Provision** will result in fragmented disks because the storage is provisioned as required.)

9. In the **Deploy OVF Template** - Setup Networks dialog box, configure the networks that the deployed template should use, and click **Next** to proceed.

10. In the **Deploy OVF Template** — Ready to Complete dialog box, review the settings, select **Power on after deployment**, and click **Finish**.

    A dialog box appears to show progress of the deployment process.

11. In the Deployment Completed Successfully dialog box, click **Close**.

    The DR2000v will boot up. (It takes approximately 3-5 minutes to self-extract the installation package and install all of the components.)

12. Proceed with the initial setup and configuration of the DR2000v. Refer to the topic, "Setting up and Configuring the DR2000v," for instructions.

Deploying the DR2000v on Microsoft Hyper-V

The topics in this section provide information about deploying the DR2000v on Microsoft Hyper-V.

For detailed information about supported Microsoft Hyper-V versions, platform and license limits, virtual infrastructure and memory requirements, and other information, see the DR Series System Interoperability Guide.

Before you begin the deployment process, ensure you have met the prerequisites described in the topic, "Prerequisites for the DR2000v on Microsoft Hyper-V."

The deployment process comprises the following tasks:

1. Deploying the DR2000v on one of the following:

    ◦ On a local Hyper-V Host

    ◦ On a remote Hyper-V Host

    > **i** NOTE: As Microsoft only supports OVF format on system center Virtual Machine Manager, using the Power Shell scripts, the DR2000v appliance's deployment for the Hyper-V infrastructure is made easier, and the procedure for creating virtual appliance with required settings is automated.

2. Converting the disk to fixed disk.
3. Setting up and configuring the DR2000v.

Prerequisites for deploying the DR2000v in Microsoft Hyper-V environments

Make sure you have installed the DR2000v license on an associated DR Series system hardware appliance, if needed. For more information, see the topic "Setting up the license for the DR2000v" in this document.

> **i** NOTE: These prerequisites are applicable to Microsoft Windows 2008 R2, 2012, and 2012 R2 Hyper- V environments.

To deploy the DR2000v on Microsoft Hyper-V and to use the DR2000v Hyper-V cmdlets, ensure that the following prerequisites are met. For more information about the available DR2000v Hyper-V cmdlets, see the topic, "Using the Suppported cmdlets for DR2000v for Hyper-V" in this document.

1. **Required User Privileges:**

    You must have administrator privileges or you must be a member of the administrator's group

2. Extract the downloaded DR2000v installation package on the Hyper-V host to access its files. It may take couple of seconds for the files to be extracted. Before executing the Hyper-V installation process the following software pre-requisites are required:

    > **i** NOTE: This software is easily accessible from the **Pre-Requisites** folder. The pre-requisite file names may change due to different DR2000V OS versions release and also other updates may be required.

    ◦ **Installing .NET Framework 4.5**

> **i** NOTE: For convenience both online and offline version of .NET 4.5 is available along with the .NET security update packages. For this deployment use the .NET Framework 4.5.1 offline full install option along with the two security update file of .NET.

- ○ **Installing Windows PowerShell 4.0**

  Windows PowerShell 4.0 is part of the Windows Management Framework 4.0. Refer to the following link for more information: http://www.microsoft.com/en-us/download/details.aspx?id=40855.

- ○ **Installing Windows Remote Management (WinRM) v2.0**

  WinRM is the Microsoft implementation of the WS-Management Protocol. It uses Simple Object Access Protocol (SOAP) over HTTP and HTTPS. For remote operations, port 5985 must be enabled on the Windows Firewall for remote management on the target server. Refer to the following links for more information:

  - · **msdn.microsoft.com/en-us/library/aa384372(v=vs.85).aspx**

  - · **http://blogs.technet.com/b/askperf/archive/2010/09/24/an-introduction-to-winrm-basics.aspx**

Additional prerequisites for deploying the DR2000v in Microsoft Windows 2008 R2 Hyper- V environment

Installing PowerShell Management Library for Hyper-V from Codeplex

This prerequisite is an Open Source project that provides a PowerShell management library for Hyper-V. It is based on Microsoft Public License (MS-PL). You can download the binaries from the following location: https://pshyperv.codeplex.com/releases.

- • Download the R2 SP1 version and save in the **PreRequisites** directory.

- • This product is not signed hence the PowerShell Execution Policy has to be set to Unrestricted. To do so, enter the following command in PowerShell with elevated privileges: `Set-ExecutionPolicy Unrestricted`.

- • Press **y** to change the execution policy.

- • Reboot the server.

Once you have extracted the content of PsHyperV.zip, you need to unblock the content because Windows attempts to block scripts downloaded from the Internet. To unblock the content using Windows Explorer:

1. Open Windows Explorer, and navigate to the temporary HyperV folder.
2. Right-click the first file in the folder and select **Properties**.
3. When the file properties is displayed, click **Unblock** and **OK**. Repeat this to unblock all the files in the folder.
4. After all the files are unblocked, move the folder **HyperV** to `%WINDIR%\System32\WindowsPowerShell\v1.0\Modules\` location.
5. Import the modules from this library by executing the following PowerShell commands:

   - ○ `Get-Module -ListAvailable -Name HyperV`

   - ○ `Import-Module -Name HyperV -WarningAction SilentlyContinue`

     > **i** NOTE: The output displayed in red is normal.

   - ○ `Get-Module -Name HyperV`

Additional prerequisites for deploying the DR2000v in Microsoft Windows 2012 and 2012 R2 Hyper- V environment

Installing the Hyper-V Management Tools

This prerequisite is a Windows feature that contains a PowerShell extension to manage Hyper-V servers on Windows 2012 and 2012 R2 systems. Using PowerShell install this feature, enter the following commands with elevated privileges:

- `Install-WindowsFeature Hyper-V-Tools` – This command enables Windows to administer Hyper-V.
- `Install-WindowsFeature Hyper-V-PowerShell` – This command installs additional PowerShell commands specialized for Hyper-V.
- `Set-ExecutionPolicy AllSigned` – This command allows scripts signed by a trusted publisher to be run on Windows server..

Install the digital certificate:

1. Open Windows Explorer and navigate to the **DR2000v.dll** file found in the **bin** directory of downloaded Hyper-V package.
2. Right-click the **DR2000v.dll** file and click **Properties**.
3. On the Properties windows go to **Digital Signatures** > **Details** > **View Certificate**.
4. On certificate windows, click **Install Certificate** > **select On local Machine** > **Next** and place it under **Trusted Publishers** certificate store.
5. Click **OK** > **Next** > **Finish**.

After the pre-requisites are complete, you can deploy the DR2000v on the local Hyper-v host. For more information, see the topic "Deploying DR2000v on a Local Hyper-V Host".

Deploying DR2000v on a local Microsoft Hyper-V host

ℹ️ NOTE: Ensure all the pre-requisites are complete before deploying the DR2000v on a local Hyper-V host. For more information, see the topic, "Prerequisites for deploying the DR2000v in Microsoft Hyper-V environments."

ℹ️ NOTE: These deployment steps are applicable to Windows 2008 R2, 2012, and 2012 R2 Hyper-V hosts.

To deploy the DR2000v on a local Hyper-V host:

1. Run the DR2000v command script from the install package.

   A command line deployment wizard is displayed with the following options:
   a. LOCAL
   b. REMOTE
   c. CONTROL PANEL

2. Type option 'a' for local deployment and press **<Enter>**.

   The following **ACTIONS** are displayed:
   ◦ Deploy
   ◦ Start
   ◦ Stop
   ◦ Delete
   ◦ Repair

3. Type action '1' to deploy and press **<Enter>**.
4. Type the appropriate DR2000v Hyper-V name and press **<Enter>**.

The following options to select storage size are displayed:

a. 1TB Data Storage Size

b. 2TB Data Storage Size

c. 4TB Data Storage Size

d. 12TB Data Storage Size

i NOTE: Windows 2008 R2 version of the DR2000v does not offer 4TB or 12TB data storage option.

5. Type option 'a', 'b', or 'c' as appropriate and press **<Enter>**.

    The DR2000v Hyper virtual machine code is now deployed and this process will take approximately 2–3 minutes. A message is displayed showing the deployment progress, that is creating of new DR2000v template, processing the DR2000v image, and populating the virtual machine with DR2000v configurations. A message appears when the deployment has completed successfully

6. When prompted to deploy another DR2000v, type 'y' for **yes** or type 'n' for **no** as appropriate and press **<Enter>**.

    The Local Deployment menu is displayed again.

7. Type option '2' and press **<Enter>** to start the DR2000v virtual machine to self extract the installation packages and install all the DR2000v components.

8. Enter the name of the DR2000v virtual appliance to start.

9. When prompted to start another DR2000v, type 'y' for **yes** or type 'n' for **no** as appropriate and press **<Enter>**.

    The Local Deployment menu is displayed again.

10. Next launch **Hyper-V Manager**. Navigate to **Start Menu > Administrative Tools > Hyper-V Manager**.

    The **Hyper-V Manager** window is displayed.

11. Select the host where DR2000v VM resides.

12. Right-click the DR2000v VM and select **Connect** to view the installation process

   Depending on your system resources, it may take 10 - 20 minutes to self extract installation packages and components.

    Once the DR2000v VM has been created, you will be prompted to convert the disk from dynamic (sparse) to fixed disk. A warning and prompt appears stating:

    ```
    WARNING: If the DR VM underlying storage runs out of space it will bypass some
    of the built-in data integrity features. Hence, it is recommended to convert
    the Dynamic VHD to Fixed VHD for this DR VM. Please refer to the relevent
    Microsoft Hyper-V documentation or call Quest support. Do you want to convert
    the dynamic expanding VHD to Fixed VHD? (y/n)?
    ```

    At the prompt, enter y or n as appropriate.

13. After installation, proceed with the initial setup and configuration of the DR2000v as described in the topic, "Configuring the DR2000v."

Prerequisites for deploying the DR2000v on a remote Hyper-V host

For any DR2000v deployment, the first step is to install the DR2000v license on an associated DR Series system hardware appliance. For more information, see the topic "Setting Up the License for the DR2000v."

Ensure that the following prerequisites are met before deploying the DR2000v on a remote Hyper-V host:

1. Both local and remote hosts/servers must have similar operating systems. For example, you cannot deploy a DR2000v with a Windows 2008 R2 host to a Windows 2012 R2 server.

2. Ensure that enough space is available on the remote machine before you start to deploy the DR2000v.

3. Ensure that the following software requirements are included in both local and remote server/hosts:

   ◦ .NET Framework 4.5

   ◦ Windows PowerShell 4.0

   ◦ Windows Remote Management (WinRM) v2.0

4. Ensure you have administrator privileges or you must be a member of the administrator's group.

5. Extract the downloaded DR2000v installation package on the Hyper-V host to access its files. It may take a couple of seconds for the files to be extracted. Before executing the Hyper-V installation process, the software pre-requisites are to be met.

   i NOTE: This software is easily accessible from the **Pre-Requisites** folder. The prerequisite file names may change due to different DR2000v OS versions and also other updates may be required.

   i NOTE: For your convenience, both online and offline versions of .NET 4.5 are available with the .NET security update files and Microsoft Management Framework 4.0 package.

6. Ensure that the following Windows commands are run on both local and remote hosts:

   ◦ `Install-WindowsFeature Hyper-V-Tools` – This command enables Windows to administer Hyper-V.

   ◦ `Install-WindowsFeature Hyper-V-PowerShell` – This command installs additional PowerShell commands specialized for Hyper-V.

   ◦ `Set-ExecutionPolicy AllSigned` – This command allows scripts signed by a trusted publisher to be run on a Windows server.

7. You can run commands on one or hundreds of computers with the following single PowerShell command syntax: `Invoke-command —computername server01, server02, —scriptblock {command-to-run}`. For more information on the Invoke command, go to **technet.microsoft.com/en-us/library/dd347578.aspx**.

   Use PowerShell to issue the three commands prerequisites to both local and remote systems, for example:

   ◦ `Invoke-command —computername localserver01, server02, server03 -scriptblock {install-WindowsFeature Hyper-V-Tools}`

   ◦ `Invoke-command —computername localserver01, server02, server03 -scriptblock {install-WindowsFeature Hyper-V-PowerShell}`

   ◦ `Invoke-command —computername localserver01, server02, server03 -scriptblock {Set-ExecutionPolicy Allsigned -Force}`

8. Install the digital certificate using the **Certificate Import Wizard**:

   a. Open Windows Explorer and navigate to the **DR2000v.dll** file in the **bin** directory of the downloaded DR2000v package.

   b. Right-click the **DR2000v.dll** file and click **Properties**.

   c. On the Properties windows, go to **Digital Signatures** > **Details** > **View Certificate**.

   d. On certificate windows, click **Install Certificate** > **select On local Machine** > **Next** and place it under **Trust Root Certification Authorities** and **Enterprise Trust** certificate stores.

   e. Click **OK** > **Next** > **Finish**.

After the prerequisites have been met and drive capacity requirements are changed, you are ready to deploy the DR2000v on a remote Hyper-v host. For more information, see the topic "Deploying the DR2000v on a Remote Hyper-V Host".

Changing the storage paths for Hyper-V deployment

If an alternate storage location is required for the DR2000v virtual appliance due to capacity limitations or for other reasons, the remote Hyper-V host **Virtual hard disks** and **Virtual machine** paths must be changed before the DR2000v is deployed.

> **i** NOTE: The capacity requirements of the DR2000v are beyond 200GB. For example, if a 2TB DR2000v is to be deployed a 2.2TB storage capacity will be required.

To change the storage paths follow these steps:

1. Log on and connect to the remote machine using Remote Desktop Protocol (RDP) using the following command: `mstsc /v:<remote server IP address>`

    For example: `mstsc /v:127.0.0.1`

2. Open the file manager and identify the volume that has free capacity for DR2000v deployment.

3. Create a folder in this location.

4. With the storage needs identified, change the Hyper-V virtual machine storage locations. From the local machine, navigate to **Start Menu > Administrative Tools > Hyper-V Manager**.

    The **Hyper-V Manager** window is displayed.

5. Connect to the host where the DR2000v will be deployed.

6. Right-click the host, and select **Hyper-V settings**.

    The **Hyper-V settings** window is displayed.

7. Change both the **Virtual hard disks** and **Virtual machine** path settings to the same new path, and click **OK**.

    The DR2000v machine is ready to be deployed.

Deploying the DR2000v on a Remote Hyper-V Host

> **i** NOTE: Ensure all the pre-requisites are complete before deploying the DR2000v on a remote Hyper-V host. For more information, see topic "Prerequisites for deploying DR2000v on a remote Hyper-V host."

> **i** NOTE: For remote deployments you must access the DR2000v deployment files using Universal Naming Convention (UNC) path names and not mapped drive shares. The C: drive is the default share, so you should place the DR2000v deployment files on the local machine.

1. From the local machine, access the DR2000v deployment package using a UNC path name.

2. Run the DR2000v command script from the install package using the UNC path name.

    A command line deployment wizard is displayed with the following options:

    a. LOCAL
    b. REMOTE
    c. CONTROL PANEL

3. Type option 'b' for remote deployment and press **<Enter>**.

You will be prompted to enter the remote hostname and user credentials for accessing it.

4. Type the remote hostname or fully qualified domain name (FQDN) of the remote host and press **<Enter>**.

5. Type the domain\user name for an authorized user of the remote host and press **<Enter>**.

6. Type the password for this user and press **<Enter>**.

   The following Remote Deployment menu of actions is displayed:

   ◦ Deploy

   ◦ Start

   ◦ Stop

   ◦ Delete

   ◦ Repair

7. Type action '1' to deploy and press **<Enter>**.

8. Type the appropriate DR2000v Hyper-V name and press **<Enter>**.

   The following options to select storage size are displayed:

   a. 1TB Data Storage Size

   b. 2TB Data Storage Size

   c. 4TB Data Storage Size

   d. 12TB Data Storage Size

9. Type option 'a', 'b', or 'c' as appropriate and press **<Enter>**.

   The DR2000v Hyper virtual machine code is now deployed and this process will take approximately 2–3 minutes. A message is displayed showing the deployment progress, that is creating of new DR2000v template, processing the DR2000v image, and populating the virtual machine with DR2000v configurations. A message is displayed when the deployment has completed successfully

10. When prompted to deploy another DR2000v, type 'y' for **yes** or type 'n' for **no** as appropriate and press **<Enter>**.

    The Deployment menu is displayed again.

    i | NOTE: Before any remotely deployed DR2000v virtual appliance can be started, its virtual network adapters need to be manually connected to a virtual switch.

11. Open local machine **Hyper-V Manager**. Navigate to **Start Menu > Administrative Tools > Hyper-V Manager**.

    The **Hyper-V Manager** window is displayed.

12. Right-click **Hyper-V Manager** and select **Connect to Server**.

13. In **Select Computer** window, enter the name of the remote Hyper-V host that the DR2000v was remotely deployed to.

14. Right-click the DR2000v virtual appliance and click **Settings**.

15. On the **Settings** window, click the NIC0 hardware object and choose the **Virtual Switch** to connect, repeat this step for NIC1 and click **OK** to apply these settings.

16. Right-click the DR2000v virtual appliance and click **Start** to self extract the installation packages and install other components.

17. Right-click the DR2000v virtual appliance again and select **Connect** to view the installation process

    Depending on your system resources, it may take 10 - 20 minutes to self extract installation packages and components.

    Once the DR2000v VM has been created, you will be prompted to convert the disk from dynamic (sparse) to fixed disk. A warning and prompt appears stating:

    ```
    WARNING: If the DR VM underlying storage runs out of space it will bypass some
    of the built-in data integrity features. Hence, it is recommended to convert
    the Dynamic VHD to Fixed VHD for this DR VM. Please refer to the relevent
    ```

```
Microsoft Hyper-V documentation or call Quest support. Do you want to convert
the dynamic expanding VHD to Fixed VHD? (y/n)?
```

At the prompt, enter y or n as appropriate.

18. After installation, proceed with the initial setup and configuration of the DR2000v as described in the topic, "Configuring the DR2000v."

Converting from dynamic (sparse) to fixed disk

For DR Series software version 4.0.0.1 or later: Once you have created a new DR2000v VM, you will be prompted to convert the disk from dynamic (sparse) to fixed disk automatically. At the prompt, enter y for yes or n for no as appropriate.

For DR Series software versions earlier than 4.0.0.1: Once the DR2000v has been deployed on Hyper-V, you will need to manually convert the disk from dynamic (sparse) to fixed disk. This process involves the following:

- Deploying a VM with default options (dynamically expanding)

- Converting the data disk to Fixed Disk.

- After successful conversion, editing the data disk option to select the new fixed disk.

- Rebooting the VM.

i | NOTE: The total storage space needs to be equal or higher to the size of the existing disk, plus the size of the new disk. For example, for a 12TB VM, if the existing data disk has grown to 10 TB, the total available space needs to be a minimum of 10TB (existing) + 12TB (new).

i | NOTE: The conversion process can take up to several hours, depending on the storage throughput.

i | NOTE: After the new disk is created, the old disk can be deleted to free up the space

Follow these steps to convert from dynamic to fixed disk manually (for DR Series software versions earlier than version 4.0.0.1):

1. After the VM is deployed, open Hyper-V Manager, right-click the VM, and click **Settings** to edit the VM settings.

2. In the Settings window, under Hardware, select the Hard Drive, and then, in the Media pane, select **Virtual data disk** and click **Edit**.

3. In the Edit Virtual Hard Disk Wizard dialog box, select **Convert** and click **Next**.

4. Select **Fixed size** as the disk type you want to use for the converted virtual hard disk, and then click **Next**.

5. Enter a path/location and name for the new disk, and click **Next**. (You should save it in the same location as the existing disk.)

6. Review your changes, and then click **Finish** to complete the wizard.

   i | NOTE: This process can take up to several hours, depending on the storage throughput.

7. Once the disk has been created, in Hyper-V Manager, select the newly created Virtual hard disk and boot the VM.

Using the supported cmdlets for the DR2000v for Hyper-V

The supported cmdlets for the DR2000v for Hyper-V include capabilities for creating a new DR2000v as well as shutting down, restoring, and removing a DR2000v.

The supported cmdlets are included in binary modules such as DR2000v.dll and DR2000v. psd1. The .dll and .psd1 files are included in the uncompressed installation package under the "bin" folder.

To use these cmdlets, you must ensure the prerequisites have been met for Hyper-V as described in the topic, "Prerequisites for deploying the DR2000v on Microsoft Hyper-V."

New-DR2000v

Purpose

To create a new DR2000v virtual machine.

Syntax

```
New-DR2000v -Name <DR2000v name> -Image <absolute path to DR2000v Image zip> -Size
<size of the image> [-ComputerName <VMHost Name>] [-UserName] <username> -Password
<password>]
```

Parameters

- **Name**: Specify the DR2000v name.
- **Image**: Specify the UNC path location of the DR2000v base image file. In PowerShell, this will provide the UNC path $env:DR_ImagePath. For example:

  New-DR2000v -Name DR2000v-New -Image $env:DR_ImagePath

- **Size**: Specify the size of the image with one of the following values: 1TB, 2TB, or 4TB. (Note that 4TB is only available for Microsoft Hyper—V 2012 and Microsoft Hyper–V 2012 R2.)
- **ComputerName**: Specify the Hyper-V server name, hostname, or fully qualified domain name.
  - Optional parameter. If not specified, the local host name will be used.
- **UserName**: Specify user name.
  - Optional parameter. If not specified, cmdlet runs in current user context.
- **Password**: Specify password.
  - Optional parameter. If not specified, cmdlet runs in current user context.

Remove-DR2000v

Purpose

To delete the DR2000v virtual machine.

Syntax

```
Remove-DR2000v —Name <DR2000v Name> -ComputerName <VMHost Name>] [-UserName
<username> -Password <password>
```

Parameters

- **Name**: Specify the DR2000v name.
- **ComputerName**: Specify the Hyper-V server name, hostname, or fully qualified domain name.
  - ◦ Optional parameter. If not specified, the local host name will be used.
- **UserName**: Specify user name.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.
- **Password**: Specify password.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.

Repair-DR2000v

Purpose

To restore the DR2000v operating system (OS) to the original firmware level, without impacting stored deduped data. (This operation is equivalent to using the Restore Manager on a physical DR Series system.)

Syntax

```
Repair-DR2000v —Name <DR2000v Name> -Image <absolute path to DR2000v Image zip> [-
ComputerName <VMHost Name>] [-UserName <username> -Password <password>]
```

Parameters

- **Name**: Specify the DR2000v name.
- **Image**: Specify the UNC path location of the DR2000v base image file.
- **ComputerName**: Specify the Hyper-V server name, hostname, or fully qualified domain name.
  - ◦ Optional parameter. If not specified, the local host name will be used.
- **UserName**: Specify user name.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.
- **Password**: Specify password.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.

Start-DR2000v

Purpose

To start a DR2000v virtual machine.

Syntax

```
Start-DR2000v —Name <DR2000v Name> —SwitchName_NIC0 <switch name> _SwitchName_NIC1
<switch name> [—ComputerName <VM Host Name>] [—UserName <username> —Password
<password>]
```

Parameters

- **Name**: Specify the DR2000v name.
- **SwitchName_NICx**: Specify the virtual switch for the virtual NICs.
- **ComputerName**: Specify the Hyper-V server name, hostname, or fully qualified domain name.
  - ◦ Optional parameter. If not specified, the local host name will be used.
- **UserName**: Specify user name.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.
- **Password**: Specify password.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.

Stop-DR2000v

Purpose

To shut down the virtual machine gracefully.

Syntax

```
Stop-DR2000v –Name <DR2000v Name> [-ComputerName <VMHost Name>] [-UserName
<username> -Password <password>]
```

Parameters

- **Name**: Specify the DR2000v name.
- **ComputerName**: Specify the Hyper-V server name, hostname, or fully qualified domain name.
  - ◦ Optional parameter. If not specified, the local host name will be used.
- **UserName**: Specify user name.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.
- **Password**: Specify password.
  - ◦ Optional parameter. If not specified, cmdlet runs in current user context.

i | NOTE: The `Start-DR2000v` and `Stop-DR2000v` are Power Shell Cmdlets that must be added into your scripting infrastructure for management.

Configuring the DR2000v

The following steps describe how to set up and configure the DR2000v for the first time.

1. After deploying the DR2000v, wait for the virtual appliance to boot completely. It takes approximately 10-20 minutes to self-extract the installation package and all of the components.

2. Log on to the DR2000v virtual machine (VM) console using the default Username: administrator and Password: St0r@ge! The Initial System Configuration Wizard is displayed.

3. On Initial System Configuration Wizard screen, type yes and press <Enter> to finish the Initial System Configuration on network settings.

4. Follow through the wizard to configure the required network entries and confirm the configuration settings.

ℹ️ • If DHCP configuration is used all of the entries are done automatically.

• If Static IP configuration is used all of the entries must be entered manually.

After the required network settings are configured, the VM will run the initial configuration, which may take up to 3-4 minutes to complete.

Deploying and configuring the DR2000v trial version

This chapter describes the steps for deploying and configuring the DR2000v 30–day trial.

i | NOTE: The DR2000V trial version does not require a license to be installed for use. If a registration request message occurs during your 30-day trial, you can safely ignore the message.

i | NOTE: **Converting from trial to production:** A DR2000v trial version can be converted to a production system when:

- A DR2000v license is purchased and installed.
- The evaluation time has not expired. The registration of a DR2000v during a 30–day evaluation is possible if the evaluation time has not expired.

Deploying a DR2000v trial version in VMware environments

The following instructions describe the steps for deploying the DR2000v trial in a VMware environment by using the vSphere or Web client.

1. Acquire the DR2000v trial installation package and store it on your system or a network location. This package is in **VMware ESXi ova** format.

   To download the trial version, visit the following link: https://www.quest.com/products/dr2000v-virtual-backup-appliance/software-downloads.aspx

2. Using vSphere Client or Web Client, deploy the downloaded OVF template as described earlier in this document.

Deploying a DR2000v trial version in Microsoft Hyper-V environments

To deploy the trial DR2000v in a Microsoft Hyper-V environment, follow these steps:

1. Download the DR2000v trial version and store it on your system or network location. To download the trial version, visit the following link: https://www.quest.com/products/dr2000v-virtual-backup-appliance/software-downloads.aspx

2. When you have obtained the DR2000v trial installation package, extract the downloaded DR2000v trial installation package to the Hyper-V host.

3. Implement the prerequisite software, commands, and digital certificates that are outlined in the topic, "Prerequisites for deploying the DR2000v in Microsoft Hyper-V environments," previously in this guide.

> **i** NOTE: Some of the prerequisite files are conveniently located in the extracted DR2000v installation package within the prerequisites folder. Additionally, Windows 2008R2 Hyper-V has a specific set of requirements you should ensure are met as described in the earlier topic in this guide, "Additional prerequisites for deploying the DR2000v in Microsoft Windows 2008 R2 Hyper-V environment." Windows 2012 and 2012R2 has a specific set of requirements as described in the topic in this guide, "Additional prerequisites for deploying the DR2000v in Microsoft Windows 2012 and 2012R2 Hyper-V environment."

4. Refer to the topic "Deploying a DR2000v on a local Microsoft Hyper-V Host" earlier in this document, and follow the instructions for deployment. When prompted to select a storage size, select **2TB Data storage size**, which is supported for the trial version.

Configuring a DR2000v trial version

The following instructions describe the steps for configuring the DR2000v trial for use.

1. Launch and follow the steps of the DR2000v Initial System Configuration Wizard:

   a. Power up the DR2000v and open the virtual machine console. It may take 5-10 minutes to self-extract the installation packages and install the components.

   b. Log on to the DR2000v with the default credentials. (username: **administrator** and password:**St0r@ge!**)

   c. Proceed through the first-time Initial System Configuration Wizard, providing the proper network settings for use within your environment.

   d. When prompted to register, enter **eval** (No licensing or registration is necessary).

2. In a Web browser, launch the DR2000v trial version GUI using the IP address, logging on with the default credentials (username: **administrator** and password:**St0r@ge!**).

   > **i** NOTE: If you are accessing the UI for the first time, the Configuration Wizard will walk you through the process of configuring the system for the first time. To access the Configuration Wizard (if it is not open in the GUI when you log on), in the Action menu in the upper right corner of the System Configuration page, click **Configuration Wizard**.)

   a. If the Virtual machine Update Manager is more recent than what the DR2000v is running, download it at: Virtual Machine Update Manager.

   The deployment of the DR2000v Trial version is complete.

   b. If you want to update the DR2000v to the latest version, in the left navigation menu of the GUI, click **Support > Software Upgrade**. Then, click **Select DR binary package**, select the downloaded Virtual Machine Update Manager file downloaded earlier, and click **Start Upgrade**.

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