## Table of contents

1 Server/Environment Introduction ................................................................................. 3  
  1.1 Dell PowerEdge 740 Overview .............................................................................. 3  
  1.2 Configuration Details ......................................................................................... 3  
  1.3 Downloads Necessary ....................................................................................... 4  
2 Customer Pre-Configuration Requirements ................................................................. 5  
3 Physical Configuration ................................................................................................. 7  
  3.1 iDrac Configuration ............................................................................................ 7  
  3.2 Physical RAID Setup ......................................................................................... 11  
  3.3 ESXi Installation and Setup ................................................................................. 16  
  3.3.1 Downloading the ESXI 6.5 U1 ISO .................................................................. 16  
  3.3.2 Installing the ESXI 6.5 U1 ISO using IDRAC .................................................... 18  
  3.4 ESXi Network Configuration ............................................................................... 24  
  3.5 ESXi Licensing ................................................................................................. 37  
  3.6 Datastore Creation ............................................................................................. 38  
4 Virtual Configuration .................................................................................................. 42  
  4.1 Avamar Virtual Edition Deployment .................................................................... 42  
  4.1.1 Download the latest AVE OVA from Support .................................................... 42  
  4.1.2 Deploying AVE 7.5 ova to ESXi ...................................................................... 43  
  4.2 Data Domain Virtual Edition Deployment .......................................................... 55  
  4.2.1 Download the latest DDVE OVA from Support ................................................. 55  
  4.2.2 Deploying Data Domain ova to ESXi ............................................................... 55  
  4.2.3 Adding Disk capacity to DDVE ....................................................................... 59  
  4.2.4 Configuring the Data Domain Virtual Edition VM .......................................... 60  
  4.2.5 Enabling Filesystem ...................................................................................... 65  
  4.2.6 Enabling DDBeast and user ......................................................................... 67  
  4.3 Data Protection Component Configuration ......................................................... 69  
  4.3.1 Adding Data Domain to Avamar 7.5 ............................................................... 69  
A Manual Configurations .............................................................................................. 73  
  A.1 Dell Server RAID Setup .................................................................................... 73  
  A.2 (Optional) Configure iDRAC Service Module for System Host OS ..................... 81  
B Related Resources ..................................................................................................... 82
1 Server/Environment Introduction

The objective of this document is to explain the installation, setup and configuration of the single server Dell PowerEdge R740 backup solution that is going to be provided to customer as a backup solution.

1.1 Dell PowerEdge 740 Overview

The PowerEdge R740 was designed to accelerate application performance leveraging accelerator cards and storage scalability. The 2-socket, 2U platform has the optimum balance of resources to power the most demanding environments.

Easily expand and optimize application performance. The R740 provides the versatility to adapt to virtually any application and provides the perfect platform for VDI deployments, supports up to 50% more users when compared to R730. It frees up storage space using internal M.2 SSDs optimized for boot. Delivers a 27% increase in processing cores and 50% increase in bandwidth over previous generation of Xeon processors.

1.2 Configuration Details

<table>
<thead>
<tr>
<th>Features</th>
<th>Technical Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Two Intel Xeon Silver 4110 2.1G, 8C/16T, 9.6GT/s 2UPI, 11M Cache, Turbo, HT (85W) DDR4-2400</td>
</tr>
<tr>
<td>Memory</td>
<td>Eight 16GB RDIMM, 2666MT/s, Dual Rank</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Internal controller: PERC H730P RAID Controller, 2Gb NV Cache, Minicard</td>
</tr>
<tr>
<td>Drive bays</td>
<td>Front drive bays: 4TB 7.2K RPM NLSAS 12Gbps 512n 3.5in Hot-plug Hard Drive Rear drive bays: 600GB 15K RPM SAS 12Gbps 512n 2.5in Flex Bay Hard Drive, 3.5in HYB CARR Internal Drive bays: 4TB 7.2K RPM NLSAS 12Gbps 512n 3.5in Internal Bay Hard Drive IDSDM and Combo Card Reader: Two 32GB microSDHC/SDXC Card</td>
</tr>
<tr>
<td>Power supplies</td>
<td>Dual, Hot-plug, Redundant Power Supply (1+1), 1100W</td>
</tr>
<tr>
<td>Embedded management</td>
<td>IPMI 2.0 compliant iDRAC9 with Lifecycle Controller Enterprise</td>
</tr>
<tr>
<td>I/O &amp; Ports</td>
<td>Intel X710 DP 10Gb DA/SFP+, + I350 DP 1Gb Ethernet, Network Daughter Card Riser Config 2, 3 x8, 1 x16 slots</td>
</tr>
</tbody>
</table>
1.3 Downloads Necessary

Below is a list of all software needed for this installation with pointers to the places further down in the document where the download procedures have been outlined and explained. It is highly recommended that all software needed is downloaded ahead of starting the full procedure and placed onto a USB stick that should then be inserted into the Dell R740 server that is being installed and configured.

<table>
<thead>
<tr>
<th>Software</th>
<th>Download Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMware ESXi 6.5 U1 ISO</td>
<td>please see [section 3.1.1]</td>
</tr>
<tr>
<td>Avamar 7.5 Virtual Edition for VMware vSphere only</td>
<td>please see [section 4.1.1]</td>
</tr>
<tr>
<td>Data Domain Virtual Edition 3.1 Update 1</td>
<td>please see [section 4.1.2]</td>
</tr>
</tbody>
</table>
## Customer Pre-Configuration Requirements

The following information will need to be provided by the customer prior to starting the setup and configuration of this Dell R740 server.

<table>
<thead>
<tr>
<th>iDRAC Setup Information Needed</th>
<th>Customer Provided Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td></td>
</tr>
<tr>
<td>Netmask</td>
<td></td>
</tr>
<tr>
<td>Gateway</td>
<td></td>
</tr>
<tr>
<td>DNS</td>
<td></td>
</tr>
<tr>
<td>DNS Alias</td>
<td></td>
</tr>
<tr>
<td>iDRAC root password</td>
<td></td>
</tr>
<tr>
<td>iDRAC default password from Dell</td>
<td>calvin</td>
</tr>
</tbody>
</table>

| **ESXi 6.5 Setup**                              |                              |
| ESXi Product License (if not being added to VC) |                              |
| IP Address                                      |                              |
| Netmask                                         |                              |
| Gateway                                         |                              |
| DNS                                             |                              |
| DNS Alias                                       |                              |
| Root Password                                    |                              |
| Hostname - FQDN                                  |                              |

| **AVE 7.5 Setup**                               |                              |
| Avamar Product License                          |                              |
| IP Address                                      |                              |
| Netmask                                         |                              |
| Gateway                                         |                              |
| DNS                                             |                              |
| DNS Search Domains                              |                              |
### NTP Server IP(s)

### Root Password
- 9-31 characters: At least one uppercase, one lowercase, one numeric, and one special character "." or "-" (dash) or "_" (underscore)

### Hostname - FQDN

### DDVE 3.1 Setup
- Data Domain Product License: DDBoostrap / TB Capacity
- IP Address
- Netmask
- Gateway
- DNS
- DNS Search Domains
- NTP Server IP(s)
- Sysadmin Password
- Hostname – FQDN
- SNMP Passphrase

### Avamar vNDMP Accelerator Setup
- IP Address
- Netmask
- Gateway
- DNS
- DNS Search Domains
- NTP Server IP(s)
- Root Password
- Hostname - FQDN
3 Physical Configuration
The Dell R740 Server must be racked and cabled. All Customer networking must be pre-configured for the VLANS required for the iDRAC connected and the Ethernet connection.

3.1 iDrac Configuration
Dell Lifecycle Controller is an advanced embedded systems management technology that enables remote server management using integrated Dell Remote Access Controller (iDRAC). Using Lifecycle Controller, you can update the firmware using a local or Dell-based firmware repository. The OS Deployment wizard available in Lifecycle Controller enables you to deploy an operating system.

This section provides a quick overview of the steps to set up your PowerEdge server using Lifecycle Controller.

Connect the video cable to the video port and the network cables to the iDRAC and LOM port.

Figure shows Video port, iDRAC port, and Lights Out Management (LOM) port
1. Turn on or restart the server and press F10 to start Lifecycle Controller.

NOTE: If you miss pressing F10, press and hold the power button for three seconds to restart the server.

NOTE: The Initial Setup Wizard is displayed only when you start Lifecycle Controller for the first time.
2. Select the language and keyboard type and click **Next**.

3. Read the product overview and click **Next**.
4. (Optional) Configure the network settings for the Lifecycle Controller, wait for the settings to be applied, and click **Next**

5. Configure the iDRAC network settings and root user password, wait for the settings to be applied, and click **Next**
6. Verify the applied network settings and click Finish to exit the Initial Setup Wizard.

3.2 Physical RAID Setup

The RAID groups needed for this build are as follows* (32TB Backup Appliance setup shown):

<table>
<thead>
<tr>
<th>Raid Group</th>
<th>Raid Type</th>
<th>Disks</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raid Group for ESXi</td>
<td>Raid 1 (Mirror)</td>
<td>Internal Dual SD (non-raid controller)</td>
<td>29 GB</td>
</tr>
<tr>
<td>RAID Group for virtual OS</td>
<td>Raid 1 (Mirror)</td>
<td>Disks 12,13 (raid controller)</td>
<td>558 GB</td>
</tr>
<tr>
<td>Raid Group for virtual storage</td>
<td>Raid 6 (Dual Parity)</td>
<td>Disks 0-5, 14-17 (raid controller)</td>
<td>50 TB</td>
</tr>
</tbody>
</table>

*If more drives are present in the current R740 being installed then the RAID6 group may need to be broken into two sets.

1. Now that IDRAC connection is established, restart the Dell PowerEdge server.
2. Login to the iDRAC Web GUI using https://IP-of-iDRAC and the root password you setup on configuration

Note: Please see Appendix A.1 for manual physical RAID setup if the following user interface procedure does not work.
3. Under Configuration → Storage Configuration, Select Create Virtual Disk

4. Enter a Name for the Virtual Disk you are creating and select the drives you wish to add to the raid, the Required Capacity field will auto fill in once the drives are selected
5. Then choose “Add to Pending Operations”
6. Repeat these same steps for the RAID 6 disks as well, selecting all 4 TB drives in the box.
7. Once back on the Storage Configuration Screen, select the “Apply Now” option to start the build of the raid configuration.
8. You can watch the status of this build out from the Job Queue Screen

9. On the Configuration → BIOS Settings screen, expand Integrated Devices and check to confirm the Internal Dual SD disks are set as RAID 1 (mirror)
3.3 ESXi Installation and Setup

Build version ESXi 6.5 U1

ISO required- VMware-VMvisor-Installer-X.X.0.updateXX-XXXXXXXX.x86_64-DellEMC_Customized-A00.iso

3.3.1 Downloading the ESXI 6.5 U1 ISO

2. Enter in service tag number for Dell R740

3. Select Change OS and Choose VMware ESXi 6.5

---

Dell R740 Backup Solution Deployment Guide
4. Select Enterprise Solutions and Download VMware ESXi 6.5 U1 ISO

View all available updates for VMware ESXi 6.5. ▶ Change OS

<table>
<thead>
<tr>
<th>Refine your results:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Category (1)</td>
<td>Importance</td>
</tr>
</tbody>
</table>

More filters

Enterprise Solutions Clear all

View by: Category Importance Release date Installation order

Show All | Hide All

**Enterprise Solutions (2 files)**

**VMware ESXi 6.5 U1** View details

- **File Name:** VMware-Vmvisor-Installer-6.5.0.update01-5969303.x86_64-DellEMC_Customized-A00.iso
  - **Importance:** Optional

- **Description:** ISO Image (338.11 MB)
  - **Release Date:** 03 Aug 2017

- **Version:** 6.5 U1,A00
  - **Last Updated:** 03 Aug 2017

This file will automatically self-install after downloading. [Contact required]

Download  Add to My Download List #1
3.3.2 Installing the ESXi 6.5 U1 ISO using IDRAC

1. Log into the Dell R740 using the IDRAC Web Interface. Once logged in, launch the virtual console to connect to Dell R740.

2. Once the Java Console is open, connect to virtual media using the top menu option Virtual Media.

3. Map the ISO image that was downloaded using the “MAP CD/DVD…” selection.
4. After mapping the ISO, reboot the Dell R740 (Power → Power Cycle) and the VMWARE ESXi 6.5 U1 OS installation will begin.

5. The Installer will open a screen that allows the choosing of the disks the ESXi OS will be loaded on.

6. Arrow down to the Internal Dual SD and press enter
7. Choose “US Default” as the language and press enter to continue.

8. Next define the root password provided by customer. Press enter to continue.

9. Press F11 to confirm the repartitioning of the system SD disks.
10. Once confirmation of repartitioning is complete the installation of ESXi 6.5. U1 will begin.

11. Upon completion of installation, the system will have to reboot. Press enter to reboot the Dell R740.

12. A message will appear warning about a system reboot.
13. Once the reboot is finished, the ESXi Load screen should appear like below.

VMware ESXi 6.5.0 (VMKernel Release Build 5969383)
Dell Inc. PowerEdge R740xd
2 x Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz
127.7 GB Memory

Download tools to manage this host from:
http://0.0.0.0/
http://ffe80::266e:96ff:fe51:2f9e1/ (STATIC)
3.3.2.1  (Optional) Turning off PXE boot

1. Located in the System BIOS Settings is the Boot settings that control what the Dell R740 will look for during boot up.
2. Log into System BIOS Settings > Boot Settings > UEFI Boot Settings and uncheck PXE Device 1 : Integrated NIC 1 Port 1 Partition 1
3. Select back button twice and then finish button to save the changes made to Boot Settings.
3.4 ESXi Network Configuration

1. At the ESXi Main screen press F2 to enter customize settings

   ![ESXi Main Screen]

2. Type in the log in credentials for the root user for ESXi

   ![Authentication Required]
3. Select the Configure Management Network

4. First enter Network Adapters
5. Make sure all connected NIC cards (VMnic2/VMnic3 in this document) are selected so the ESXi host can utilize both. Press enter to save configuration for network adaptors.

6. The next configuration would be the VLAN (optional). If a port channel / switch has a VLAN established for the DELL R740 network this setting must be defined. Press enter to set the VLAN.
7. Once the VLAN is defined press enter to save and go back to the Configure Network Management menu.

8. To continue the setup of the network enter the ipv4 or ipv6 configuration. In this document ipv4 will be shown.
9. Define the ipv4 settings IPv4 Address, Subnet Mask, and Default Gateway. Press enter to continue.

10. Double check that IPV6 is disabled if you are not setting this up for the customer.
11. Continue to the DNS Configuration by selecting enter.

12. Define the IP for DNS server, alternate DNS server, and hostname for ESXi. Press enter to continue.
13. Custom DNS suffixes can be defined.

14. Once all network configuration has been defined selecting Esc button will trigger the save and restart management network screen. Press Y to confirm saving configuration and restarting management network.
15. While back at the settings menu; enter into Troubleshooting Options.

16. Select Enable ESXi Shell and press enter. This will allow the ability to enter the ESXi shell from this menu.

17. Press Ctrl + Alt + F1 to enter the ESXi power shell.
18. Enter the below commands to edit Port group settings:

```
esxcli network vswitch standard policy failover set -l iphash -v vSwitch0

esxcli network vswitch standard portgroup policy failover set -p "Management Network" -l iphash
```

19. Press Ctrl + Alt + F2 to exit ESXi power shell and return to Troubleshooting menu. Make sure to disable ESXi PowerShell.
20. Confirm log in to the ESXi web GUI using a preferred web browser.

Enter the host's IP address (https://<ip-of-your-host>/) into a supported browser and enter your newly created root user credentials.

21. After confirming access to ESXi web GUI, go to Networking > VM network > Edit Settings
22. Make sure the correct VLAN ID is associated to the VM Network then click **Save**.

23. Go to Virtual Switches tab. Select **Edit Settings** for vSwitch0

24. Make sure all connected NICS (VMnic2/VMnic3 in this example) are set to **Active**
**Edit standard virtual switch - vSwitch0**

### Add uplink

<table>
<thead>
<tr>
<th>MTU</th>
<th>1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uplink 1</td>
<td>vmnic2 - Up, 10000 mbps</td>
</tr>
<tr>
<td>Uplink 2</td>
<td>vmnic3 - Up, 10000 mbps</td>
</tr>
</tbody>
</table>

- **Link discovery** Click to expand
- **Security** Click to expand

### NIC teaming

- **Load balancing** Route based on IP hash
- **Network failover detection** Link status only
- **Notify switches** Yes [ ] No [ ]
- **Fallback** Yes [ ] No [ ]

### Failover order

<table>
<thead>
<tr>
<th>Name</th>
<th>Speed</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>vmnic2</td>
<td>10000 Mbps, full duplex</td>
<td>Active</td>
</tr>
<tr>
<td>vmnic3</td>
<td>10000 Mbps, full duplex</td>
<td>Standby</td>
</tr>
</tbody>
</table>

- **Traffic shaping** Click to expand

[Save]  [Cancel]
25. Select all NICs labeled as Standby and click **Mark Active**. Select **Save** to exit.
3.5 ESXi Licensing

To license vSphere ESXi 6.5 individually, use the vSphere Web Client. If adding this ESXi server into a vCenter please validate that you have the license file already on the vCenter to accommodate this server.

1. Enter the host's IP address (https://<ip-of-your-host>/) into a supported browser and click Search.

2. Log in to the ESX/ESXi host using your credentials.

3. Click Manage > Licensing > Assign license
4. Enter the license key in the text box and select Check license.

5. Review the license keys and click Check License.

3.6 Datastore Creation

This setup requires two datastores to be created. One for all virtual OS of the VMs and one for the virtual storage of the VMs.

1. To begin creating a datastore. Log into ESXi 6.5 web GUI using your preferred browser.
2. Select Storage >> New datastore
3. Select Create new VMFS datastore as a creation type.

4. Name the datastore. In this example, the datastore name will be Virtual OS. Make sure to select the correct Local DELL Disk is selected and choose next.
5. Confirm that Use full disk is selected as well as VMFS 6. Click next to continue.

6. Review the settings and then select Finish to begin creation of Datastore.
7. Select “Yes” to confirm the creation of the partition. (Repeat steps 2-7 to create datastore virtual storage)

8. Go to Storage Tab to confirm the two datastores were created successfully.
4 Virtual Configuration
This section will walk you through how to install and setup the virtual components required for this solution, these include Avamar Virtual Edition, Data Domain Virtual Edition and the Virtual NDMP Accelerator.

4.1 Avamar Virtual Edition Deployment

4.1.1 Download the latest AVE OVA from Support
Current Avamar 7.5 OVA as of October 2017:

https://download.emc.com/downloads/DL85178_Avamar_7.5_Virtual_Edition_for_VMware_vsphere_only.ova?source=OLS
4.1.2 Deploying AVE 7.5 ova to ESXi

1. To begin deploying the OVA. Log into ESXi 6.5 web GUI using your preferred browser.
2. Select Virtual Machine > Create / Register VM
3. Select **Deploy a virtual machine** creation type and select **Next**.
4. Name the virtual machine and drag the OVA file into the wizard utility. Select Next.

5. Select the virtual OS for storage and click Next.
6. Agree to the end-user license agreement and select **Next**.

7. Select the VM Network that will be used for Deployment. Use **Thin** Disk provisioning and **Deselect** Power on automatically.
8. Click to Expand the Networking Properties. Define the Networking Properties and select **Next**.

9. Click **Finish** to begin creation of AVE 7.5 ova.
10. Deployment will take several minutes. Deployment can be tracked in the recent tasks section of the ESXi web GUI.

<table>
<thead>
<tr>
<th>Result</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>Running... 84 %</td>
</tr>
<tr>
<td>✔️</td>
<td>Running... 84 %</td>
</tr>
</tbody>
</table>

11. Once the powered off AVE 7.5 VM has deployed. **Right click** the AVE 7.5 VM and go into **Edit Settings**
12. Remove and delete from datastores default hard disks 2-4 (250G) and then select “Add hard disk” at the top. Add three 1 TB drives, expanding the drop down and selecting the virtual storage datastore for their location. Confirm 2 CPUs and 16 GB of memory are configured, update if needed. Select Save to configure the newly added hard disks.

13. Power on the AVE 7.5 VM. Open console into the AVE 7.5 VM. Log in with credentials root / changeme
14. (OPTIONAL) If there are any networking issues during deployment, a configuration GUI might appear giving you the ability to review and update your Network settings for AVE 7.5. Press 5 to save any network changes you make.

15. When the network configuration completes a message should appear confirming connection to Gateway.

```
/sbin/service apache2 status
Checking for httpd2: ...running
/sbin/service apache2 stop
Shutting down httpd2 (waiting for all children to terminate) ..done
/sbin/service apache2 start
Starting httpd2 (prefork) ..done
gen-ssl-cert: INFO: Regenerating avinstaller SSL certificate
   keytool -delete -alias tomcat -storepass changeit -keystore /root/.keystore
   gen-ssl-cert: INFO: Successfully deleted tomcat from java keystore - generating new certificate
   gen-ssl-cert: INFO: Successfully created tomcat in java keystore
   gen-ssl-cert: INFO: Restarting avinstaller service
   gen-ssl-cert: INFO: avinstaller service restart complete
   gen-ssl-cert: INFO: Restarting LDLS service
   gen-ssl-cert: INFO: LDLS service restart complete
********* NETWORK CONFIGURATION APPEARS TO BE OK - CAN PING THE DEFAULT GATEWAY *********
```
16. (OPTIONAL) If the AVE is not pingable once booted, login as root and launch “Yast2” then manually configured the network from there. (Hint: You will need to use Ctrl+H as your backspace option inside Yast in the Avamar Console)

17. The next step is to finish configuring the AVE 7.5 VM using the Avamar Installation Manager. Access the Avamar Installation Manager using a preferred web browser. Go to URL: https://<IP address of ave>:7543/avi/aviGUI.html Use the default root / changeme to log in.

18. To complete the AVE 7.5 configuration locate the ave-config package and select install.
19. Wait for the Installation Setup wizard to Load.

20. Once the Installation setup loads. Review all the Tabs and define all the required fields marked with a red exclamation point. (Select Show advance settings located on bottom left of screen to show all settings related to configuration) Select **Continue** once done configuring the tabs.
21. The ave-config installation will take approximately 20 minutes.

22. Once installation completes. Exit out of the installation manager.
23. Go to URL https://<Avamar IP or FQDN> with a preferred browser. This will take you to the Avamar Web Restore. Either click on “Administrator” or Go to the Downloads section. Download Avamar Console Multiple windows x 86 64-7.5.0-183 file located under Windows (64 bit) folder, or whatever OS you are trying to install the Administrator software on.

25. Press **Install** button to start extraction. Use **Browse** button to select a destination folder for the Avamar Management Console.

![Image of installation process]

25. Once extraction is complete a desktop Icon will appear. Double click the desktop Icon to Launch Avamar Administrator.

![Image of Avamar Administrator Icon]

26. A log in screen will appear. You must log in with your IP or Hostname for the Avamar. Use root or MCUser and newly created Password to log in. Use / for the domain.

   **NOTE:** If you are unable to login please SSH into the AVE and (re)start the MCS service
4.2 Data Domain Virtual Edition Deployment

4.2.1 Download the latest DDVE OVA from Support

Current Data Domain 6.1.11-56197 OVA as of September 2017:

https://download.emc.com/downloads/DL86168

4.2.2 Deploying Data Domain ova to ESXi

1. To begin deploying the OVA. Log into ESXi 6.5 web GUI using your preferred browser.

2. Select Virtual Machine > Create / Register VM
3. Select **Deploy a virtual machine** creation type and select **Next**.

4. Name the virtual machine and drag the OVA file into the wizard utility. Select **Next**.
5. Select the Virtual OS Datastore and select **Next**

6. Agree to the end-user license agreement and select **Next**
7. Select the VM Network that will be used for Deployment. Use **Thin** Disk provisioning and **De-Select** Power on automatically. There is some configuration that is needed before powering on.

8. Select **Finish** to begin deployment of Data Domain OVA
9. Deployment will take several minutes. Deployment can be tracked in the recent tasks section of the ESXi web GUI

<table>
<thead>
<tr>
<th>Result ▲</th>
<th>Completed ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Running... 84 %</td>
</tr>
<tr>
<td>✓ Completed successfully</td>
<td></td>
</tr>
<tr>
<td>✓ Completed successfully</td>
<td></td>
</tr>
<tr>
<td>08/24/2017 09:04:42</td>
<td></td>
</tr>
<tr>
<td>08/24/2017 09:04:41</td>
<td></td>
</tr>
</tbody>
</table>

4.2.3 Adding Disk capacity to DDVE

1. Go into Edit Settings for the DDVE virtual machine. Select 4 CPU and 24 GB memory. Select Add hard disk. Create the number of 2TB disks associated to virtual storage datastore that are needed based on the license model purchased (8TB, 16TB or 32TB) and make sure the drives are Thick provisioned, lazily zeroed. Select Save to create the virtual disk.

*The number of disks created may be different if there are more drives in the system being installed*
3. Wait for the virtual disk creation to complete in the **recent tasks** section of ESXi web GUI.

4. Power on the DDVE

### 4.2.4 Configuring the Data Domain Virtual Edition VM

1. Open console into the DDVE through the ESXi web GUI, log in to the DDOS using default credentials `sysadmin / “changeme”`. 

![DDVE login screen](image)
2. The system will ask to change the sysadmin password. Enter Yes

3. Continue the configuration wizard to define the DDVE network settings.
4. Once network settings are saved. The DDVE web GUI is available. To access the web GUI set your web browser to https://<hostname_or _IP> Log in with the recently created sysadmin credentials.

5. The first log in attempt to DDVE web GUI will trigger the License screen prompt. Attach the license file and select **Apply**. You will need to get the unique Node locking ID of each DDVE for the appropriate license file.
6. The configuration wizard will appear upon first log into the web-GUI. This wizard will allow the review of network settings and enable the file system among other things. Select **QUIT** in this wizard. The disks need to be added before we can configure the filesystem.
4. Go back to the console of the DDVE, run command `storage show all`. This command will show the newly added 2 TB virtual disks, capacity license, and other storage information. Keep track of the Device numbers for each unknown type disk, they will be needed for the next command.

![Storage addable devices](image)

5. To add the unknown 2 TB virtual disks to active tier use the command `storage add dev**`.

```
sysadmin@elab056173# storage add dev11
Checking storage requirements...done
Adding dev11 to the active tier...done
Updating system information...done
dev11 successfully added to the active tier.
```

```
sysadmin@elab056173# storage add dev12
Checking storage requirements...done
Adding dev12 to the active tier...done
Updating system information...done
dev12 successfully added to the active tier.
```

6. Exit the Console and Log into the web GUI for the DDVE. Go to storage view under the Hardware section. This section will show you all available virtual disks.

![Data Domain System Manager](image)
4.2.5 Enabling Filesystem

1. Navigate to the Data Management > Filesystem section of the DDVE web GUI. Select the Create button to begin the Filesystem creation wizard.

2. Select all the 2 TB drives that are available and click Next.

3. Select Enable file system after creation then click Finish to begin creation and enablement of the file system.
4. The installation takes several minutes to complete.

5. Wait for green check marks for file system creation and enablement before closing the wizard.
4.2.6 Enabling DDBooost and user

1. Navigate to the Protocols > DD Boost section on the DDVE Web GUI. Enable DD Boost and create a DD Boost user in this section.
2. Selecting the green plus sign to the right of Allowed Clients will allow the ability to add the Avamar server as an Allowed Client. Define the Hostname for the Avamar server and click OK.

3. Selecting the next green plus sign to the right of Users with DD Boost Access will allow the ability to add the DD boost user. Define the DDBoostr user and password and click Add.

4. The DDBoostr User will have to be added as admin in the User Section as well. Administration > Access then the Local Users Tab. Modify the DDBoostr Management Role and verify that admin is selected.

5. In the Administration > Access Administrator Access tab you also have the ability to set the SNMP Passphrase, go ahead and do this now as it will be needed in section 4.1.1.
4.3 Data Protection Component Configuration

4.3.1 Adding Data Domain to Avamar 7.5

1. Log into the Avamar 7.5 VM. Using MCUser or root user.

2. Once logged into Avamar Administrator, select the Server Tab located on the top right of the main screen.
3. Select the **Server Management** Tab and select the icon on the top menu **add Data Domain system**.
4. Fill out the DDVE hostname or IP, DDBOOST credentials on the first tab and SNMP String on the second tab (Using the same SNMP Passphrase you set on the DDVE itself prior). You have to select **Verify** to confirm connection with DDVE.
5. After successful verification, select **OK** to add Data Domain System.

6. Once configuration completes, a screen will appear displaying **successfully added Data Domain**.
A Manual Configurations

A.1 Dell Server RAID Setup

1. Access System Setup menu through KVM or IDRAC connection.
2. Press F2 for System Setup (BIOS)

3. Once in the System Setup Main Menu Select Device Settings
4. In Device Settings, select Integrated RAID Controller 1: Dell PERC <PERC H730P Mini>

5. To review the physical disks involved with your R740 Dell Server select Physical Disk Management
6. To create virtual disks (RAID Groups), select Configuration Management.

7. Within the Configuration Utility is the ability to Create Virtual Disks (RAID Groups) to begin the utility select the Create Virtual Disk.
8. For this example, we will be creating virtual disk group for the environment’s virtual storage. Select RAID 6 on the drop down list for RAID Level.

9. The virtual storage will be using physical Disks 0-5 and 14-17. To associate the physical disks to your virtual disk group (RAID Group) open select Physical Disks.
10. Leave defaults for Media Type, Interface Type, and Sector Size. Check off disks 0 -5, 14-17, and select apply changes.

11. A screen will appear to confirm success of adding the physical disk to your virtual disk group (RAID group). Select OK to continue.
12. Define a Virtual Disk Name. eg. RAID6storage

13. Capacity will default into the utility based off the physical disks / RAID level you associate to the virtual disk group (RAID Group). Selecting Create Virtual Disk will save the Virtual Disk group (RAID Group)
14. A screen will appear asking you to confirm the creation of the Virtual Disk Group (RAID Group). Check off the confirm box and then select Yes to continue.

![Screen showing the confirmation window for creating a Virtual Disk Group]

15. A screen will appear confirming success of configuration. Select OK to continue to Main Menu.

![Screen showing the success confirmation window]

---

79 Dell R740 Backup Solution Deployment Guide
16. The virtual disk group (RAID) group is now created. To confirm it was configured correctly, go into Virtual Disk management.
A.2 (Optional) Configure iDRAC Service Module for System Host OS

From Dell Download Site, download from System Management -> Dell iDRAC Service Module (VIB) for ESXi 6.5, v3.0.1

Copy the zip file via WinSCP to /tmp on the ESXi server (you will need to enable SSH via the GUI to do so)

```
cd /tmp and run: "esxcli software vib install -d /tmp/ISM-Dell-Web-3.0.1-722.VIB-ESX60i_A00.zip"
```

A reboot is required.
B Related Resources

Dell R740 Spec Sheet


Enabling the ESXi Shell:


Setting the vswitch and port group to iphash:

Avamar 7.5 VMware Install Guide


DDVE Install and Admin Guide


Avamar 7.5 NDMP for NAS User Guide


Copyright © 2017 Dell Inc. or its subsidiaries. All Rights Reserved. Dell, EMC, Dell EMC and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners. Reference Number: H17082