Active System Manager Solution Guide Active System 50 for Hyper-V

Version 7.1



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August 2013 | Rev 1.0

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Introduction to the Active System 50 solution

Dell[™] Active Infrastructure is a family of converged infrastructure solutions that combine servers, storage, networking, and infrastructure management into an integrated and optimized system that provides general purpose virtualized resource pools. Active Infrastructure leverages Dell innovations including unified management with Active System Manager, LAN and SAN fabrics, and rack server architecture. Active Infrastructure helps IT rapidly respond to dynamic business demands, maximize datacenter efficiency, and strengthen IT service quality.

The Active System 50 includes Dell PowerEdge[™] R620 servers, Dell EqualLogic[™] PS6100 Series iSCSI storage and Dell PowerConnect[™] 7024 switches.

An optional Dell PowerEdge R420 server is available to host Dell and customer management tools. Additionally, this management server can be configured with the optional Dell Active System Manager to build private cloud solutions that address key needs in for small to medium business and data centers.

Active System 50 is offered in configurations with either VMware® vSphere™ or Microsoft® Windows Server® 2012 with Hyper-V® role enabled Hypervisors. The VMware vSphere solution is the Active System 50v and the Microsoft Hyper-V solution is the Active System 50m. This document defines the solution guide for Active System 50v.

Audience

IT administrators and IT managers, who have purchased, or are planning to purchase an Active System configuration, can use this document to understand the design elements, hardware and software components, and the overall architecture of the solution.

Support

Contact Dell technical Support by visiting the Dell web site at <u>www.dell.com/support/softwarecontacts</u>.

Technical Documentation

The Dell Active System Manager documentation enables you to better understand your current Active Infrastructure, its deployment, and management software.

For this release, we recommend that you familiarize yourself with the following documentation:

- Reference Architecture for Active System 50 with Hyper-V
- Specification Guide for Active System 50 with Hyper-V
- Design and Implementation Guide for Active System 50 with Hyper-V
- Active System Manager User Guide Release 7.1
- Active System Manager Web Interface User Guide Release 7.1

To access the latest Active System Manager documentation for Version 7.1:

Active System Manager Solution Guide-Active System 50 (AS50) for Hyper-V

- 1. Navigate to <u>www.dell.com/support/manuals</u>, click Choose from a list of all Dell products and click Continue.
- 2. Click Software and Security → Enterprise System Management → Active System Manager → Dell Active System Manager Version 7.1.

Overview

This section provides a high-level product overview of the Active System supported components and configurations.

Table 1 lists the Active System Manager solution for the Active System 50-supported components.

 Table 1.
 Active System 50-Supported Components

Component	Details
Hyper-V Hypervisor	Up to 2x Dell PowerEdge R620 with Microsoft Windows Server 2012 Datacenter edition having Hyper-V role enabled
ToR Switches	• 2xPowerConnect 7024 for LAN connectivity
	• 2xPowerConnect 7024 for SAN connectivity
Storage	 Up to 2x Dell EqualLogic PS6100 series arrays (default is one)
Management Infrastructure	 1x Dell PowerEdge R420 server with embedded VMware vSphere 5.1 hosting management VMs.
	OR
	 1x Dell PowerEdge R420 server with Microsoft Windows Server 2012 with Hyper-V role enabled and hosting management VMs.
Management components hosted in the management infrastructure	 Microsoft Windows Server 2012 with Hyper-V Role enabled
	 Microsoft System Center 2012 SP1 Virtual Machine Manager SCVMM
	Dell EqualLogic SAN HeadQuarters (HQ)
	Dell OpenManage Essentials (optional)

Active System 50 Supported Configurations

Table 2 lists the Active System Manager solution for the Active System 50-supported configurations.

Table 2.	Active System	50-Supported	Configurations
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Configuration	Support
Dell PowerEdge Rack servers (R620)	Support firmware images as per the Active System Manager solution for Active System 50
Dell PowerConnect Top-of-Rack (ToR) 7024 switches	The base configuration should be updated for virtual LAN (VLAN) as per data center deployment need.
Dell EqualLogic PS6100 Storage Array	Supported firmware versions will be packaged in the virtual appliance.
Microsoft Windows Server 2012 for virtual machine (VM) workloads	Microsoft Windows Server 2012 image should be copied to the virtual appliance manually
Hyper-V installation support on rack servers Dell PowerEdge R620	

Deployment Options

The Active System Manager solution for Active System 50 is packaged as a virtual appliance and is made available for VMware ESXi 5.1 and Microsoft Hyper-V Server 2012; see Table 3:

- Open Virtualization Format (OVF) for VMware—disk format is VMware virtual machine disk (VMDK).
- Hyper-V virtualization environment-disk format is virtual hard disk (VHD) for Hyper-V.

Virtual Appliance Filenames	Platform
Dell-ActiveSystemManager- 7.1.0. <buildnumber>_VMware.zip</buildnumber>	VMware ESXi 5.1
Dell-ActiveSystemManager-7.1.0. <buildnumber>_Microsoft.zip</buildnumber>	Windows Server 2012 with Hyper-V

Table 3. Deployment Options

Deployment Prerequisites

Before using the Active System Manager solution for end-to-end provisioning of Active System 50 components, make sure that the prerequisites listed in Table 4 are in place.

Specification	Prerequisite	
Connection requirements	Active System 50 units connected per the Active System 50 Reference Architecture and Deployment Guidelines	
Management server requirements	Management server is configured per the Active System 50 Reference Architecture and Deployment Guidelines	
Firmware and BIOS requirements	All equipment must be configured with firmware versions as per	
	Appendix E—Firmware and Software Base Lineup	
For the Active System 50 racks (R620) :	 Server iDRAC is configured and has the OOB IP address and login credentials. 	
Dell PowerConnect 7024 switches	 The management IP address is configured for the switches. 	
	• The AS 50 base configuration is applied on 4 switches.	
	 VLANs are created on the switches per the Active System 50 deployment specification. 	
	• The virtual machine (VM) traffic VLANs will be created dynamically by Active System Manager.	
EqualLogic Storage Array	 The group IP and management IP are configured for Storage Array. 	
	• All storage array members are added to the group.	
Microsoft SCVMM 2012 SP1	• SCVMM 2012 SP1 is configured and accessible via the management and hypervisor management network.	
	Appropriate licenses are deployed on SCVMM.	
Active Directory	The domain has a valid AD setup for registering the Hyper-V servers, Hyper-V cluster and VMs	
DNS	DNS is configured and running.	

Table 4.Deployment Prerequisites

Active System Manager Deployment

The following topics describe how to deploy the Active System Manager:

- Deploying VHD
- Changing Key Access Credentials
- Assigning IP Address to the Active System Manager Appliance
- Adding Additional Licenses
- Configuring Active System Manager Services

Deploying VHD

The Active System Manager Virtual Hard Disk (VHD) can be imported on to a Hyper-V host using the Hyper-V Manager \rightarrow Import Virtual Machine option. When booted, the Active System Manager VM gets its IP address from an existing DHCP server. If a DHCP server is not configured, manually assign the IP address to the appliance.

Importing the VHD Using Hyper-V Manager

1. From Hyper-V Manager, right-click on a host and select Import Virtual Machine.

Figure 1. Hyper-V Manager \rightarrow Import Virtual Machine

	Hyper-V Manager
Eile Action M Hyper-V Man	View Help ager Import Virtual Machine Hyper-V Settings Virtual Switch Manager Virtual SAN Manager Edit Disk Inspect Disk Inspect Disk
	Stop Service Remove Server Refresh View • Help

2. On the Locate Folder page, Browse to the location where the VDH is available in the extracted format

	Import Virtual Machine	x
Locate Folder	r	C
Before You Begin Locate Folder Select Virtual Machine Choose Import Type Summary	Specify the folder containing the virtual machine to import. Fglder: Brow	NSE
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish Ca	ancel

3. Click Select Folder and click Next.



4. On the Select Virtual Machine page, select the VM and click Next.

2	Import Virtual Machine	×
Select Virtua	l Machine	
Before You Begin	Select the virtual machine to import:	
Locate Folder	Name	Date Created
Select Virtual Machine	Active-System-Manager-7.1.0-Build-760_Microsoft	7/25/2013 5:30:54 PM
Choose Import Type		
Summary		
	ad ad ad ad	
	< <u>P</u> revious <u>N</u> ext	> Einish Cancel

5. On the Choose Import Type page, select Register the virtual machine in place (use the existing unique ID) and click Next.

Minine Import Virtual Machine			
Choose Import Type			
Before You Begin Locate Folder Select Virtual Machine Choose Import Type Summary	Choose the type of import to perform: Register the virtual machine in-place (use the existing unique ID) Regtore the virtual machine (use the existing unique ID) Cgpy the virtual machine (create a new unique ID) 		
	< Previous Next > Finish Cancel		

6. On the Summary page, click Finish.

	Import Virtual Machine
Completing	Import Wizard
Before You Begin Locate Folder Select Virtual Machine Choose Import Type Summary	You are about to perform the following operation. Description: Virtual Machine: Active-System-Manager-7.1.0-Build-760_Microsoft Import file: C:\export\Active-System-Manager-7.1.0-Build-760_Microsoft\Virtual Machines\9385 Import Type: Register (keep ID) < III To complete the import and close this wizard, click Finish.
	< Previous Next > Finish Cancel

7. The newly imported Virtual Machine appears on the Hyper-V Manager.

1011		Hyper-V Manag	jer	
File Action View Help				
🗢 🄿 🙍 🖬				
Hyper-V Manager	Virtual Machines			
	Name 📩	State	CPU Usage	Assigned Memo
	Active-System-Manager-7.1.0-Build-760_Micros	soft Off		

8. Right-click the Virtual Machine and select Start to power-on the Virtual Machine.

Vame		•	State	CPU Usage
Active-Syster	n-Manager-7.	1.0-Build-760_Microsoft	Off	
			Connect	
			Settings	
			Start	
			Snapshot	
			Move	
			Export	
			Rename	
		en la	Delete	
			Enable Rep	lication
			Help	

9. Select the network name. The VM needs to be mapped to the Hypervisor Management Network. All the networks (e.g. OOB, Hypervisor Management, vMotion and VM workloads) are expected to be accessible from the appliance.

Active-System-Manager-7.1.0-Build-76 Active-System-Manager-7.1.0-Build-76 Add Hardware BIOS Boot from CD Boot from CD Memory S12 M8 Processor If the Drive Active-System-Manager-7.1.0 Management Prove Prove Prove Prove State Point Pice Prove Prove <t< th=""><th colspan="4">Settings for Active-System-Manager-7.1.0-Build-760_Microsoft on H0MDTV1</th></t<>	Settings for Active-System-Manager-7.1.0-Build-760_Microsoft on H0MDTV1				
Add Hardware Specify the configuration of the network adapter or remove the network adapter. With a downere Specify the configuration of the network adapter or remove the network adapter. With a grocessor With a grocessor With a grocessor VIAN ID With a grocessor With a grocessor With a grocessor The VLAN identification With a grocessor The second adownet with a grocesor <	Active-System-Manager-7.1.0-Build-76	Active-System-Manager-7.1.0-Build-76 🗸 🗼 🔍			
BitUS BitUS BitUS BitUS Memory S12MB Virtual processor Image: Discrete controller 0 Hard Drive NewWMWHMDS_disk_1.vhdx Image: Discrete controller 1	Hardware Add Hardware	Vetwork Adapter Specify the configuration of the network adapter or remove the network adapter.			
■ Memory S12 MB S12 MB Processor ■ Processor If the processor ■ IDE Controller 0 Enable yitual LAN identification ■ Mark Drive New/MWithOS_disk_1.vhdx ■ IDE Controller 1 20 ■ DE Controller 1 20 ■ DE Controller 1 20 ■ ODD Drive 20 Bandwidth Management 20 Bandwidth Management Specify how this network adapter utilizes network bandwidth. Both Minimum Bandwidth and Maximum Bandwidth are measured in Megabits per second. Minimum bandwidth: 0 Mone Migimum bandwidth: 0 Management 0 Mbps None 0 None 0 Iservices offered 0 10 Iservices offered Sonaphot File Location C: Vactive-System-Manager-7.1 Seesetings cannot be modified because the virtual machine was running when integration services are not installed in the guest operating system. Imagement Imagement Imagement Imagement Imagement Imagement Imagement 0 Mbps Imagement Imagement Imagement Imagement <td>Boot from CD</td> <td>Virtual switch:</td>	Boot from CD	Virtual switch:			
S12 M8 W LAN ID In Processor In Processor In DE Controller 0 In Hard Drive Newt/MWithOS_disk_1.vhdx Image: DE Controller 1 Image: DE Controller 1<	Memory	ConvergedNetSwitch 🗸			
 Processor Processor IDE Controller 0 Hard Drive NewVMWithOS_disk_1.vhdx IDE Controller 1 DVD Drive vmguest.iso SCSI Controller Active-System-Manager-7 ConvergedNetSwitch CoM 1 None Diskette Drive Active-System-Manager-7.1.0 Management Diskette Drive Active-System-Manager-7.1.0 Smart Paging File Location C:\Active-System-Manager-7.1 Some attrigg a cannot be modified because the virtual machine was running when this window was opened. To modify a setting that is unavailable, shut down the virtual machine and then reopen this window. 	512 MB	VLAN ID			
 IDE Controller 0 Hard Drive NewWMWithOS_disk_1.vhdx DVD Drive Vmguest.iso SCSI Controller Active-System-Manager-7 COM 1 None COM 2 None Diskette Drive Active-System-Manager-7.1.0 Management Diskette Drive Active-System-Manager-7.1.0 Management To leave the minimum or maximum unrestricted, specify 0 as the value. To remove the network adapter from this virtual machine, dick Remove. Integration Services All services offered Smart Paging File Location C: VActive-System-Manager-7.1 Automatic Start Action None Automatic Start Action Automatic Start Action<td>1 Virtual processor</td><td>Enable virtual LAN identification</td>	1 Virtual processor	Enable virtual LAN identification			
NewVMWithOS_disk_1.vhdx Image: DEC Controller 1 Image: DVD Drive wriguest.iso Image: SCSI Controller Image: COM 1 None Image: COM 2 Image: Com 2 None Image: Com 2 Image: Com 2 Image: Com 2 None Image: Com 2	 IDE Controller 0 Hard Drive 	The VLAN identifier specifies the virtual LAN that this virtual machine will use for all network communications through this network adapter.			
 Dide Controller 1 DVD Drive wnguest.iso SCSI Controller Active-System-Manager-7 ConvergedNetSwitch COM 1 None COM 2 None Diskette Drive Active-System-Manager-7.1.0 Management Diskette Drive Active-System-Manager-7.1.0 Management To leave the minimum or maximum unrestricted, specify 0 as the value. To remove the network adapter instead of this network adapter to perform a network-based installation of the guest operating system or when integration services are not installed in the guest operating system. Some settings cannot be modified because the virtual machine was running when this window was opened. To modify a setting that is unavailable, shut down the virtual machine and then reopen this window. 	NewVMWithOS_disk_1.vhdx	20			
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 Active-System-Manager-7 ConvergedNetSwitch COM 1 None COM 2 None COM 2 None Diskette Drive Active-System-Manager-7.1.0 Management Name Active-System-Manager-7.1.0 Name Active-System-Manager-7.1.0 Integration Services Al services offered Snapshot File Location C: Vactive-System-Manager-7.1 Smart Paging File Location C: Vactive-System-Manager-7.1 Smart Paging File Location C: Vactive-System-Manager-7.1 Management V Some settings cannot be modified because the virtual machine was running when this window was opened. To modify a setting that is unavailable, shut down the virtual machine and then reopen this window. 	SCSI Controller	Enable <u>b</u> andwidth management			
	Active-System-Manager-7 ConvergedNetSwitch	Specify how this network adapter utilizes network bandwidth. Both Minimum Bandwidth and Maximum Bandwidth are measured in Megabits per second.			
Image: COM 2 None Maximum bandwidth: Image: Maps Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0 Image: Come and the system - Manager - 7. 1.0	COM 1 None	Minimum bandwidth: 0 Mbps			
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 Snapshot File Location C: \Active-System-Manager-7.1 Smart Paging File Location C: \Active-System-Manager-7.1 Smart Paging File Location C: \Active-System-Manager-7.1 Automatic Start Action None 	Integration Services All services offered	Use a legacy network adapter instead of this network adapter to perform a network-based installation of the quest operating system or when integration			
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Automatic Start Action None V Activate	C:\Active-System-Manager-7.1	this window was opened. To modify a setting that is unavailable, shut down the virtual machine and then reopen this window.			
Go to Acti	Automatic Start Action	Activate			
		Go to Acti			
<u>QK</u> <u>Cancel</u> <u>A</u> dplyrdows.		<u>QK</u> <u>Cancel</u> <u>A</u> pply dows.			

10. Right-click the Virtual Machine and select Connect to launch the console.

ame	-	•		State
Active-Syster	n-Manager-7.*	1.0-Build-760_N	icrosoft	Runnina
			Conr	nect
			Settin	ngs
			Turn	Off
			Shut	Down
			Save	
			Paus	e
			Reset	

11. Use the following necessary key access credentials.

	Table 5.	Key Access	Credentials
--	----------	------------	-------------

VM Access Credentials	Username/Password
Active System Manager server installation login	delladmin/delladmin
Active System Manager server root	root/Dell@123
Active System Manager client applications (Web UI/RCP)	admin/admin

Changing Key Access Credentials

Passwords should be changed at the time of deployment. You should change the passwords before creating or changing any of the software repositories.

- 1. Stop Active System Manager services:
 - a. Log in as user delladmin (see Table 5).
 - b. Execute following commands:
 - cd \$HOME/asm-galeforce/gf/sbin

```
./stopasm.sh
```

Make sure that all of the services are stopped before continuing.

- 2. Change the passwords using the standard Linux command passwd to change the passwords for any of the three stock accounts.
 - o root
 - o delladmin
 - o oracle

You will need root access to modify the passwords. Run the following commands:

su

<Enter root password>

passwd delladmin

<Enter new password>

<Re-enter new password>

3. Repeat these steps until all three user accounts have been modified.

IMPORTANT: Do not rename the user accounts, only change their passwords.

4. Reboot your Active System Manager VM.

After you have changed your passwords you must reboot your Active System Manager VM. Before you reboot, make any other changes such as IP address or time (NTP) configurations and then reboot once to encompass all of your changes.

5. Update any already existing software repositories that are running on the Active System Manager appliance.

Most of your software repositories depend on credentials to be able to access firmware, ISO files, PXE boot files, etc. If the passwords are changed as part of an initial deployment, there will be fewer repositories to update with the new credentials. If you change passwords on an Active System Manage server that has been in use for a while, you may have many more repositories to update.

Assigning IP Address to the Active System Manager Appliance

This procedure is necessary only if the Active System Manager does not automatically obtain IP address from DHCP.

- 1. On the vSphere or Hyper-V Manager client, select the deployed Active System Manager appliance and open its console.
- 2. Log in as the root user. See the Table 5.
- 3. Navigate to System→Preferences→Network Connections to launch the Network Connections wizard.
- 4. Select the network interface card (NIC) appliance on which IP address should be configured manually and click Edit.
- 5. On the Editing dialog box, click the IPv4 Settings tab. Select Manual for the Method.
- 6. Click Add and enter the IP address and other networking information (for example, DNS). Click Apply

Wired 802.1x Securit	lPv4 Setti	ngs IPv6 S	ettings
Method: Manual			
Addresses			
Address	Netmask	Gateway	Add
192.168.120.156	24		Delete
DNS servers:	192.168.120.	.216	
Search domains:			
D <u>H</u> CP client ID:			
✓ Require IPv4 a	ddressing for	this connecti	on to complete
			Routes
Available to all user	'S	<u>C</u> ancel	Apply

Figure 2. Assigning IP Addresses

- 7. Open the terminal console by clicking **Applications** \rightarrow **System Tools** \rightarrow **Terminal**.
- 8. Execute the following command:

/etc/init.d/network restart

9. Log in to the appliance with the newly configured IP address. This will ensure that the IP address is configured correctly on the appliance.

Adding Additional Licenses

To add a license:

- 1. Perform one of the following methods:
 - To add a license using web client, click Settings \rightarrow License on the menu bar.
 - To add a license using thick client, click Tools → Settings on the menu bar, and click License tab.

The License screen displays the current licensing information and associated live (current) counters.

- 2. Optional. In the License screen, click the Refresh icon to refresh the resource count and view the currently allocated resources.
- 3. Click Get New License. The next license screen allows you to request and deploy or install new product license.
- 4. In the Request Product License section, click NOW and enter the following contact details:
 - o First name
 - Last name (optional)
 - o Email address
 - o Company name
 - Group or organization name
- 5. Click **Send Email** to send an email (support@dell.com) to the Dell Support team, requesting for a product license.

The Dell Support team responds to your software license request with a license file.

- 6. In the **Deploy Product License** section, copy and paste the content of the license file provided in the **License File** text box.
- 7. Click Submit.

Configuring Active System Manager Services

The following sections describe how to start, stop, and verify Active System Manager services.

Starting Services

The appliance is configured to start Active System Manager services during start-up. To start the services manually:

- 1. Log in as user **delladmin** (see Table 5).
- 2. Execute following command:

cd \$HOME/asm-galeforce/gf/sbin

./startasm.sh

NOTE: The Active System Manager services must not be started by user **root**.

Stopping Services

To stop the services manually:

- 1. Log in as user **delladmin** (see Table 5).
- 2. Execute following command:
 - cd \$HOME/asm-galeforce/gf/sbin

./stopasm.sh

Verifying Service Status

To verify that all Active System Manager services are running:

- 1. Log in as user **delladmin** (see Table 5).
- Run the following script to display the current status of all services, including the Oracle database status:

cd asm-galeforce/gf/sbin

./asmstatus.sh

Figure 3. Sample Active System Manager Services Status Output

Active System Manager Service

Host: asm-galeforce Port: 40500 Secure Port: 50500

Enterprise: Dell

Lab: DEMO

Status: Running

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Installing the Active System Manager Client

You can install the Active System Manager Client on the following platforms:

- Installing Active System Manager Client Software on Windows
- Installing Active System Manager Client Software on Mac
- Installing Active System Manager Client Software on Linux

Installing Active System Manager Client Software on Windows

- 1. Download the Active System Manager installer, Win 64 version should be downloaded for Win 64 OS and Win 32 should be downloaded for Win 32 based OS.
- On your desktop, click Start → Run → Browse, navigate to the setup.exe file, and click OK. Alternatively, from your Windows Explorer window, navigate to the setup.exe file and doubleclick.

A Security Warning window prompts you to run the file.

3. Click **Run** and complete the installation wizard.

NOTE: If an existing version of the client is on the client machine, invoking the installer prompts you to uninstall the existing version already on the system. Once selected, the installer uninstalls the existing version and then exits. Restart the installer to install the new version.

4. Click Finish to complete the installation process.

Installing Active System Manager Client Software on Mac

- 1. Download the ActiveSystemManager-macosx.x86_64_7.1.0_xyzt.zip file.
- 5. Unzip the file into a specific folder destination on your hard drive.
- 6. Create an Active System Manager folder and move the file contents to this location.
- 7. Execute the Active System Manager.app file.

Installing Active System Manager Client Software on Linux

1. Download the ActiveSystemManager-linux.gtk.x86_7.1.0_xyzt.zip file.

- 8. Unzip the file into a specific folder destination on your hard drive.
- 9. Create an Active System Manager folder and move the file contents to this location.
- 10. In the console, execute the Active System Manager file.

Accessing Active System Manager Using the Windows Client Software

- 1. Launch the client software application.
- 2. On the Connect to Active System Manager Server dialog box, click Setup.

Figure 4. Connecting to the Active System Manager Server

() Connect	to Active System Manager Server
	Active System Manager
Account:	Setup
Username:	
Password:	
0	OK Cancel

- 3. On the Setting up Accounts dialog box, click Add.
- Enter a unique and descriptive Account name for the account and Server IP address of the appliance. The name of the account can be any descriptive as shown in the following figure. NOTE: If secure connection is required, then port number must be 50500 and transport option must be HTTPS.

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Figure 5.	Adding New Account		
🛞 Add Nev	w Account		
Account:	Active System Manager		
Server:	192.168.120.112		
Port:	40500		
Transport:	Transport: Normal (over HTTP) 🔹		
OK Cancel			

- 5. Click OK.
- 6. Select the account created earlier.
- 7. Enter the username and the password for the appliance. The default username and password is admin/admin.
- 8. Click **OK** to launch the Active System Manager application.

Active System Manager Setup

This section describes the steps to manage and deploy the rack servers in the Active System 50. The sequence of steps includes:

- Managing Users and Groups
- Discovering Active System 50 Components
 - WindowsDomainAdminUser—Domain user whose credentials must be created on the Hyper-V server.
 - WindowsDomainFullyQualifiedName—Fully qualified domain name of the domain to which the servers must be joined.
 - WindowsDomainName—Domain name to which the servers have to be joined
 - WindowsDomainPassword—Domain user password which will be used to access the domain
 - WindowsPassword–Password for the Windows local administrator
 - WindowsProductKey—Product key for the Windows Server 2012 installation
- Configuring Software Repositories Required for AS 50 Orchestration

Managing Users and Groups

You can manage users and groups within the Active System Manager by either manually entering individual users and groups, or by importing users from an external repository, such as Lightweight Directory Access Protocol (LDAP), Active Directory (AD), or Network Information Service (NIS).

For user management, log in to the Windows client and navigate to **Tools** → **User and Groups**. The **Security Management–Users and Groups** dialog box displays.

NOTE: Set the time zone to match the time on the workstation that the Active System Manager client is installed.

Security Manag Users and Gro Add, edit, and de Users Groups Search:	gement Bups elete users and gi	roups with asso	iciated permissi	ions				▲
Username	First Name	Last Name	Role	Authentic	Email	Status	Time Zone	- Add
admin	admin	admin	Administr	AL	abc@galetech.com	Active	America/Los_Angeles	Edit Delete Profiles Copy Reset Password Activate Deactivate v Switch To
•				III			•	
0								Close

Figure 6. Security Management–Users and Groups

For details on user and group administration, see the "User Profile Management" chapter in the *Active System Manager User Guide*, which is downloadable from the Active System Manager 7.1 web portal (Help menu) or from the Thick client (Eclipse-based).

Discovering Active System 50 Components

Active System 50 components to be discovered include:

- Dell R620 rack servers
- PowerConnect Top-Of-Rack (ToR) 7024 switches
- Dell EqualLogic Storage Array
- Microsoft SCVMM 2012 SP1 components

Initiating Discovery

To initiate the Discovery process, perform the following tasks in this order:

- Configuring Discovery Setup
- •

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- Adding Details for the Active System
- Adding SCVMM System Properties
- Starting the Discovery Process

Configuring Discovery Setup

- 1. Connect to the Active System Manager Client using user credentials with Administrator privileges.
- 2. Select Tools → Discovery → Setup.

The Discovery Configuration Setup page displays.

Figure 7. Discovery Configuration Setup Page

Discovery Configuration Setup

Use this UI to discover one or more Dell Active Systems with associated servers, storage arrays and switches (TOR). Before you proceed, it is recommended to:

- Gather IP addresses and access credentials associated with the chassis / blade infrastructure elements, storage arrays and switches (TOR).
- Make sure all elements have network connectivity, and the associated element management interfaces are accessible from the Active System Manager server.



Adding Details for the Active System 50 Unit

NOTE:

- In general for all the devices, when defining names and provisioning parameters, you should avoid using the following special characters: @ # \$ % ^ () + = " | } { []., |:; "'? / > <
- The volume names of the Dell EqualLogic Storage Array can contain only alphanumeric characters, and the following special characters: colon (:), period (.), and dash (-).
- When discovering a POD, the value for the AssetTag cannot contain any of the strings in the following names: Dell, Force10Switch, EqualLogicStorageArray, VMware, or Host. For example, AssetTag cannot have a value of "Storage" as this value matches exactly with a string in "EqualLogicStorageArray".
- 1. Click Add System → AS50.
- 2. Enter a unique name for the AS 50 pod.

NOTE: In general for all the devices, when defining names and provisioning parameters, you should avoid using the following special characters: @ # \$ % ^ () + = " | } { []., |:; "'? / > <

NOTE: The volume names of the Dell EqualLogic Storage Array can contain only alphanumeric characters, and the following special characters: colon (:), period (.), and dash (-).

The following AS 50 components are listed:

- o Dell Servers
- Dell EqualLogic Storage Array
- o Dell PowerConnect 7024
- 11. Provide the following element properties for each of the **Dell Ser**vers component:

Input Name	Description
Assettag	Unique key or name used to import or identify the R620 server within Active System Manager
Username	iDRAC username to access and manage the Dell R620 server
Password	iDRAC password to access and manage the Dell R620 server
IP Address	iDRAC IP address of the Dell R620 server iDRAC. The iDRAC should be IP reachable from the Active System Manager server.

12. Provide the following element properties for the Dell EqualLogicStorageArray component:

Input Name	Description
Assettag	Unique key or name for the EqualLogic Storage Array, which is used to import or identify an EqualLogic Storage Array in the Active System Manager.
Username	Management username to access and manage the EqualLogic Storage Array.

Password	Management password to access and manage the EqualLogic Storage Array
IP Address	Management IP address for the EqualLogic Storage Array. Management IP should be reachable (via ping to test) from the ACTIVE SYSTEM MANAGER server

NOTE: If there are multiple storage groups, there should be an entry for each of the Storage Group in the **Discovery Configuration Setup** view. To add a new element in an existing Active System 50 unit, click **Add Element**, select **Dell EqualLogicStorageArray**, and provide required details to initiate discovery.

13. Provide the following element properties for the Dell PowerConnect 7024 switch component:

Input Name	Description
Assettag	Unique key or name for Dell PowerConnect 7024 Switch which is used to import or identify the 7024 Switch in Active System Manager.
Username	Username to manage the switch
Password	Password to manage the switch
IP Address	Management IP address for the switch. This should be IP reachable from the Active System Manager server.
SupportedVLANIDs	VLAN IDs that could be provisioned on the LAN switch. Sample input format (21024); the switch supports a VLAN range from 2 to 1,024.
	NOTE: This is present only for PowerConnect LAN switch components and not present for PowerConnect SAN switches.
enablePassword	Password to manage the switch.
Role	It is recommended not to edit the Role. The IP Address, Username and Password fields mentioned above should be entered for the switch corresponding to this role.

NOTE: Discovery will fail if SSH is not enabled in the switches, see Appendix D–Enabling SSH in PowerConnect 7024 switches.

Adding SCVMM System Properties

For successful deployment of Hyper-V, all the Active System 50 elements have to be successfully discovered in a single run.

- 1. In the Active System Manager Configuration area, click Add SCVMM and enter a unique key or name for Microsoft SCVMM which is used to import or identify SCVMM in the Active System Manager.
- 14. Click on the Microsoft Host, and provide the following properties:

Input Name	Description				
Asssettag	Unique key or name for Microsoft host				
Username	Domain username to access and manage SCVMM. This user must have full administrator rights to SCVMM.				
Password	Domain password to access and manage the SCVMM.				
IP Address	IP address for the SCVMM server. This must be IP reachable from the Active System Manager server.				
SCVMMFullyQualified DomainName	The FQDN of the domain in which SCVMM is present				
SCVMMDomainName	The domain name in which SCVMM is present.				

Starting the Discovery Process

- 1. Connect to the Active System Manager Client using user credentials with Administrator privileges.
- 15. On the menu bar, click Tools → Discovery → Start, which initiates the discovery process for components that were set up during the discovery configuration setup.

NOTE: You can view the discovery progress from the task bar shown at the bottom of the client.

192.168.120.112 | 40500 | admin | America/....286 | Resource discovery is in progress...

If the discovery progress is initiated when a discovery process is already in progress, the Active System Manager User is prompted with a message, indicating the same.

Configuring Server Inventory

After completing the Active System 50 components discovery, update the following information manually for all rack servers. These parameters will be used for configuring the Hyper-V Server with appropriate information (for example, IP Address, hostname, username, password).

Editing Individual Server Inventory

- 1. Click Inventory in left pane.
- 2. In the Resource Instances area, select PowerEdge R620.
- 3. Double-click the asset tag of the server to open a new page.
- 4. Scroll down to Inventory Parameters.

This information can also be updated by using the multi-editor feature. You can launch the multi-editor by selecting multiple server instances from Inventory \rightarrow Resource Instances \rightarrow PowerEdge R620 and right-clicking Open with Multi-Editor.



Figure 8. Open with Multi-Editor

The following parameters must be updated

- WindowsComputerName— Hostname to be assigned to the Hyper-V server, should be restricted to 15 characters
- WindowsDomainAdminUser—Domain user whose credentials must be created on the Hyper-V server.

- WindowsDomainFullyQualifiedName—Fully qualified domain name of the domain to which the servers must be joined.
- WindowsDomainName—Domain name to which the servers have to be joined
- WindowsDomainPassword—Domain user password which will be used to access the domain
- WindowsPassword–Password for the Windows local administrator
- WindowsProductKey–Product key for the Windows Server 2012 installation

Configuring Software Repositories Required for AS 50 Orchestration

The following Hyper-V repositories are used by the Active System Manager for Hyper-V related provisioning activities are available in the Active System Manager virtual appliance:

- Windows Image Repository Applicable for Dell Servers, where the repository has the Windows Server 2012 ISO bootable images. This is pre-packed and made available in Active System Manager, but you must edit it for your environment.
- SCVMM Baseline images Applicable for Microsoft Virtual Machines, where the repository has the Gold VM image already configured. You must configure this repository for your environment.

Updating Repository Elements for Windows Image Repository

This repository contains Windows Server 2012 images for deploying on the rack servers. Before executing the steps below, log in to the Active System Manager appliance as **delladmin** user and copy the Windows Server 2012 iso in the location /var/nfs.

- 1. Open the Software Repositories view in the setup perspective by clicking Setup → Software Repositories on the client.
- 2. In the Software Repositories view, right-click and select Repositories.
- 3. On the Software Repository–Select Repository Type dialog box, select Software Repository and Existing.
- 16. Select Windows Image Repository from the list, and click Next.
- 17. On the **Software Repository–Repository Properties** section, update the Host (IP address), Port, Username, Password and Base Directory.

Name field is requ	ired.					1.
me:						
scription:						
ocation Pattern						
ile Format:						Variables.
ieromat.						Turburcan
older Format:						Variables
Repository Propert	es					
Name	Value				Required	
Host						
Port	22				\checkmark	
Username					\checkmark	
Password					\checkmark	
Additional Propertie	s					
Name *	Value				[Add
						Remove
omain Association						
V Name A		F	lement	tType		
System			mage F	File		
	main will be used t	o cave the	e renn	citory element	in 'Save As' one	ration
lote: Accoriated d	most millibe used t	o save uk	e repos	atory cicilienc	an save as ope	
lote: Associated de						
lote: Associated d						

Figure 9. NFS ISO Repository Configuration

- 18. Click Next to display the list of repository files.
- 19. Click **Discover** to initiate the discovery of the repository files. The list of images exported by the NFS repository is displayed.
- 20. Select the Windows Server 2012 image.
- 21. Right-click the selected image and from the menu and select set type as \rightarrow Image file.
- 22. Click Finish.
Updating Repository Elements for SCVMM Baseline Images

This repository contains Windows Server 2012 baseline images for creating VM clones.

- 1. Open the Software Repositories view in the setup perspective by clicking Setup → Software Repositories on the client.
- 2. In the Software Repositories view, right-click and select Repositories.
- 3. On the Software Repository–Select Repository Type dialog box, select Software Repository and New.
- 4. Select Microsoft SCVMM Repository from the list, and click Next.

Figure 10. SCVMM Repository Configuration

🌐 Software Reposit	ory			
Add a new Micro Name field is requir	ed.	ository		1. 0
Name: Description:				
Location Pattern				
File Format:				Variables
Folder Format:				Variables
Repository Propertie	s			
Name	Value		Required	
Host			✓	
Username			✓	
Password				
Additional Properties				
Name 🔺	Value			Add
				Remove
Domain Association				
🖌 Name 🔺		Element Type		
System		Image File		

5. On the **Software Repository–Repository Properties** dialog box, update the SCVMM (host IP address), username, and password.

- 6. Click Next to display the list of repository files.
- 7. Click **Discover** to initiate the discovery of the repository files. The list of VMs managed by the SCVMM displays.
- 8. Right-click the discovered element, set the Type to Image File.
- Associate this to the Microsoft Virtual Machine Resource type by clicking Associate → Resource Types. Select Microsoft → Microsoft Virtual Machine.
- 10. Click **Associate** to associate the selected element with the **Microsoft-VirtualMachine** resource type, and click **Finish**.

Configuring Networks

This section describes configuring the networks that are to be used in AS 50 Orchestration and configuration. The various networks have to be configured prior to doing an orchestration. For more information about networks, see the *Active System Manager 7.1 User Guide* Chapter 10, "Network Management".

Accessing the Network Configuration Setup

The network configuration setup can be accessed from the **Tools**->**Discovery**->**Networking** as shown in Figure 11. This will open a new page where the new networks can be configured and default networks can be modified.

Configuring the Default Networks

AS 50 come with six different types of networks already added. These networks have to be modified as per the environment in which the AS 50 is being used. The below sections describes configuring those networks.

Configuring Existing Networks

In order to configure any network, select the network that needs to be configured. The list of existing networks that are part of this network category are displayed.

Figure 11	I. Network Setup	Wizard		
Network Configuration Select elements to view/create/update Identity Pool and Network details	Active System Manager Private LAN Networks This is a list of the configured Private LAN Networks. Add - Choose this if you wish to configure a new Private LAN Network Edit - Choose this if you wish to edit an existing Private LAN Network Delete - Choose this if you wish to remove an existing Private LAN Network Private LAN Networks			
Configured Networks Dublic LAN Private LAN SAN ISCSI An Anagement Network Hypervisor Management	Name Default Hyper-V Cluster Private Default vMotion/Live Migration	Description Default Private LAN Network for Microsoft Hyper-V c Default Private LAN Network for VMware vMotion/M	Addressing V DHCP 2 Static 1	

From the list of pre-configured networks, select the network that needs to be modified and click the **Edit** button. From the **Edit** dialog box, you can modify network parameters.

NOTE: AS50 does not support SAN FCoE networks.

Figure 12. Editing an Existing Network

Edit Default VM Network PUBLIC_LAN Configuration.			
Edit Default VM Network PUBLIC_LAN Configuration.			
Edit/View information about the Default VM Netw	vork PUBLIC_LAN configured in your environment.		
Name:	Default VM Network		
Description:	Default Public LAN Network for workloads		
NetworkType:	Public LAN		
VLAN ID: (any number between 1 and 4094)	1044		
Configure static IP address ranges:			

To configure static network ranges, select the **Configure static IP address ranges** check box.

Edit Default VM Network PUBLIC_LAN C	onfiguration. 🛛 🗙				
Edit Default VM Network PUBLIC_LAN Configuration.					
Edit Miaw information about the Default VM Netwo	ork DURITE LAN configured in your environment				
Name:	Default VM Natural				
Name:	Default VM Network				
Description:	Default Public LAN Network for workloads				
NetworkType:	Public LAN				
VLAN ID: (any number between 1 and 4094)	1044				
Configure static IP address ranges:					
To configure a static network, you must add at le must not overlap, and should be used exclusively	east one valid IP address range and additional required information. IP address ranges / for the static network identified in this profile.				
Gateway:	11 . 11 . 11 . 11				
Subnet Mask:	255 . 255 . 0 . 0				
Primary DNS:					
Secondary DNS:					
DNS Suffix:					
Starting I	D Address A Ending ID Address				
172.0.0) 172.1.0.0				
1,1,0,0,0					
•	E E E E E E E E E E E E E E E E E E E				
Add IP Range Edit IP Range Delete IP Range	nge				

Figure 13. Editing an Existing Static Network

Adding Static IP Address Ranges

- 1. Click Add IP Range.
- 2. Specify the starting and ending IP addresses.
- 3. Click Save IP Range.

-

	Figure 14. Ac	ading if Address Kange	
Gateway:	172 21	. 172 . 126	
Subnet Mask:	255 . 255	255 128	
Primary DNS:	172 . 17	. 0 . 1	
Secondary DNS:		1 1	
DNS Suffix:			
	Starting IP Address 🔺	Ending IP Address	
	172.21.172.1	172.21.172.55	
	<u> • </u>		
Starting IP Address: 0,	, , Endin	g IP Address:	1
Save IP Range Cancel			

Figure 14. Adding IP Address Range

To configure an existing IP range, select the already configured range, and click Edit IP Range.

Table 6 summarizes the list of values that needs to be configured for a network.

Table 6.	Values	Required	for	Configuring	Networks
----------	--------	----------	-----	-------------	----------

Entry	Details
VLAN ID	The VLAN ID that is configured on the switch for this network type.
Static IP address ranges	For configuring static IP addresses
Gateway	Gateway IP for this network
Subnet Mask	Subnet mask of this network
Primary DNS	Primary DNS
Secondary DNS	Secondary DNS (not mandatory)
DNS Suffix	Domain name
Starting IP Address	The starting IP address
Ending IP Address	The ending IP address

Configuring Default Server Templates

The Active System 50 orchestration applies the server templates to the server at the time of setup. For more information about server templates and profiles, see the *Active System Manager 7.1 User Guide* Chapter 7, "Server Templates and Profiles".

If multiple VM workload VLANs are required, use the **Add** button to add more. The networks need to be added with naming convention Workload-<*VLANID*>. For example, Workload-20.

NOTE:

- Server Template names should not contain spaces.
- Server Templates for Active System 50 Hyper-V should have VM NICs with the name: NIC_1.
- Active System Manager does not pick up the workload VLAN based on the VLAN ID defined in the Network setting. The workload VLANs are randomly picked up based on the VLAN range defined for the layer 2 switch in the Active System Manager Inventory System. If a specific workload VLAN ID is needed, it should be specified in the VLAN Resource Type → Provisioning settings in the physical template.
- Attaching more than one Server Profile Template to a physical orchestration template will cause the physical orchestration to fail.

Network Type	Server Template Network Name	Hyper-V host Network Mapping
Hypervisor Management	DefaultHypervisorManagement	Management Network
Public LAN	DefaultWorkload	Virtual Machine Network
Private LAN	DefaultvMotionLiveMigration	Live Migration Network
Private LAN	DefaultHyperVClusterPrivate	Cluster Private Network
SAN iSCSI	DefaultSANiSCSI	iSCSI Network to access EqualLogic storage array.

Table 7.Default Hyper-V Host Mapping

The following networks should have unique VLAN IDs:

- Hypervisor Management
- Public LAN
- Private LAN
- SAN iSCSI

The network names should contain the following substring for enabling RA to identify proper networks

- Hypervisor Management network should contain "HypervisorManagement" substring.
- Compute Live Migration network should contain "vMotionLiveMigration" substring.
- Compute Cluster Private network should contain "HyperVClusterPrivate" substring

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NOTE: Hypervisior Management, LiveMigration, Cluster, and SAN iSCSI networks must be configured with static IP Addresses.

Physical Templates and Orchestration

The following sections describe physical template management and orchestration.

Updating Physical Templates

This section lists all of the mandatory input parameters that have to be updated prior to provisioning the Hyper-V cluster template.

Post deployment, it is a best practice to run cluster validation on any newly deployed Hyper-V clusters. For more information, see "Validate Hardware for a Windows Server 2012 Failover Cluster" at: http://technet.microsoft.com/en-us/.

Updating Global Parameters of the Template

The Global parameters have to be modified prior to running any orchestration. The Global parameters can be updated from the **Global parameters** tab of the template as shown in Figure 15. Table 8 specifies the list of mandatory global parameters that need to be configured.



Figure 15. Updating Global Parameters

Table 8. List of Mandatory Global Parameters to Configure

 Parameter
 Description

 SCVMM Information
 Information

SCVMMServerIP	IP Address to access and manage SCVMM
HyperVHostGroupName	The host group in SCVMM under which hosts have to be created. By default it is "All Hosts". If user wants the hosts to be grouped in a new custom folder then "All Hosts\folder1" input has to be given. Then AS 50 orchestration creates a new folder under "All Hosts".
HyperVInstallationImage	Hyper-V installation image present in NFS ISO Repository. Refer to Updating Repository Elements for Windows Image Repository for details.
Serverprofiletemplate	The server profile that has to be applied to the AS 50 hosts. By default, it is mapped to AS50_HyperV-template. If user has created a custom server profile template then it can be specified by editing this parameter.
HyperVClusterName	The SCVMM cluster to be created under which the hosts are grouped and also name of the EqualLogic storage volume which is mapped to the SCVMM cluster. NOTE: The HyperVClusterName can contain only alphanumeric characters, and the following special characters: colon (:), period (.), and dash (-).
Network	
HyperVClusterIPAddress	The management network IP address that has to be assigned to the Hyper-V cluster.
vmNetworkName	VM network to be created on the SCVMM. By default it is convergednetswitch.
LogicalNetworkName	Logical network to be created on the SCVMM. By default it is convergednetswitch.
Storage	
ClusterVolumeSize	The size of the EqualLogic storage cluster to be created. By default it is 500g (500 gigabytes). It can be customized by giving custom value followed by a 'g'.
iSCSIVolumeSubnet	The specific subnet access to the EqualLogic volumes. If *.*.* is given then everyone will be able to access the newly created volumes.
QuorumVolumeSize	The quorum storage volume size, by default it is 1g(1 gigabyte). It can be customized by giving custom value followed by a 'g'.
QuorumVolumeName	The Quorum volume that has to be created in the

	EqualLogic
HyperVISCSIStoragePrefix	This is the prefix that needs to be prepended before the following orchestration parameters:
	HyperVClusterName
	QuorumVolumeName
	For example, if the prefix is AS50x, then the two above parameters would be AS50x <hypervclusername> and AS50x<quorumvolumename></quorumvolumename></hypervclusername>
StoragePoolName	The storage pool name under which the newly created storage volumes have to be mapped. If no new storage pool to be created then "default" has to be mentioned.

Updating VLAN Auto Properties

- 1. Select the VLAN Component, click the Provisioning tab, and update the VLANCount with the number of VLANs to be provisioned.
- 23. Update the VLANId parameter, as applicable.
- 24. Save the template.





Associated Orchestrations with Hyper-V Host Templates

The AS50 Hyper-V template has three orchestrations associated with it:

Figure 17. Orchestrations



- **On-demand**—*Create Additional Storage* This orchestration can be executed on demand when the session is in *running* state.
- Set-up—Hyper-V Imaging using NFS Network ISO Boot This orchestration executes when template provisioning starts and the session is in the Setting Up state. This will deploy Hyper-V on the servers, and configure EqualLogic storage volumes and workload VLANS in switches.
- Tear-down—Hyper-V Clean Up This orchestration executes when a session in the *running* state is cancelled.

Set-Up Orchestration

The AS50 - *Cluster HyperV 2012 Hypervisor deployment* template can be used for installing Hyper-V on the hard disk of the rack server, using iDRAC ISO Boot. You can specify one or more rack servers using this template for creating a cluster.

Default Server Templates

The AS 50 Orchestration applies the Server templates to the server at the time of Set-Up. Refer to the *Active System Manager User Guide* for information on configuring the default templates.

When this template is scheduled, it performs the following sequence of operations:

- 1. Validates the user input provided in the template.
- 2. Creates server profiles and attaches the server profiles to the servers.
- 3. Reserves single or multiple VLANs for VM traffic using a VLAN component. If the VLAN reserved in the session is not already configured on the ToR switches, then the VLANs are created and tagged to appropriate port-channels.
- 4. Creates the ISO files for each server dynamically based on the service tag of the server.
- 5. Mounts the ISO using iDRAC Virtual Media on all the servers and initiates the installation process.

- 25. Creates two volumes on the EqualLogic Storage Array
 - a. A Quorum volume and a cluster volume is created based on the volumes specified in the template input.
 - b. Access to the volumes is granted to the each of the servers.
 - c. The servers then connect to the EqualLogic storage and initialize the discovered disks.
- 26. Creates a host group (if one does not already exist) on the specified SCVMM server.
- 27. Add Hyper-V hosts to the host group.
- 28. Creates a cluster (if one does not already exist) on the specified SCVMM server.
- 29. Adds Hyper-V hosts to the cluster.
- 30. Creates a logical network on SCVMM and associates it with the VLAN configured using the VLAN component in step 3.
- 31. Creates a VM network on the SCVMM server and associates it with the logical network created in step 11. The Hyper-V hosts are also bound to this VM network.
- 32. Creates an IP pool having IP addresses in the range specified in the public LAN component the network. This IP pool is associated with the logical network created in step 11.
- 33. Removes the installation and ISO files from the servers.
- 34. Initiates the discovery of the SCVMM and the entire pod and updates the inventory with latest information.

On-Demand Orchestration

For additional cluster storage on a Hyper-V host reserved through the Active System Manager, you can execute on-demand orchestration from a *Running* session.

For executing the on demand orchestration, open the session by double-clicking it. In the session window, right-click and select Execute Orchestration \rightarrow Create Additional Storage.



Figure 18. Create Additional Storage

On-Demand Orchestration Input

Before starting an on-demand orchestration, you must provide the name of the volume that must be created.

- 1. On any running physical orchestration, right-click and select Execute Orchestration → Create Additional Storage.
- 2. In the Execute Orchestration Create Additional Storage window, double-click the volume create step present in Step 1: Create volume.
- 3. In the **Specify Input Values** window, in the **volumeName** row, provide the name for to the additional volume.

NOTE: The volume Name should have same the prefix that was given to the **HyperVISCSIStoragePrefix** variable in the global parameters of the template.

On-Demand Sequence of Operations

The on-demand orchestration performs the following sequence of operations:

- Creates a new volume on EqualLogic storage.
- Allows access to the new volume to each of the Hyper-V hosts.
- Configures the volume and adds it to the cluster.

Tear-Down Orchestration

This orchestration stops any running physical session and cleans up the resources provisioned as part of it. In order to execute a tear down orchestration, perform either of the following:

• From the sessions tab on the left, right-click on any running session and select cancel. This will cancel the physical session by executing the tear-down orchestration.



Figure 19. Cancel Session

 Alternatively, right-click on any running session and select Execute Orchestrations → HyperV Clean Up. This will not cancel the physical session, but will only run the tear down steps.



The tear-down orchestration performs the following sequence of operations:

- 1. Removes all the hosts from the cluster and host group on SCVMM server.
- 2. Removes the ippool that was created in the logical network.
- 3. Detaches the server profile.
- 4. Deletes the temporary server profiles that were created for the rack servers.
- 5. Releases the IP addresses that were blocked at the starting of the orchestration back to the free pools.
- 6. Reinitiates the discovery of the SCVMM environment to populate the latest inventory.
- 7. Powers off servers.

Unmounts the Windows ISO that was mounted at the time of the installation.

Workload Provisioning Using Logical Templates

The following sections describe configuring logical templates and provisioning workloads, which can be run only on top of a fully successful physical session.

NOTE:

- AD and DNS to be configured in the VM should be reachable from the network which the VMs are going to use.
- The gold VM to be used for template creation should be either already licensed or it should be running on a trial license. If it prompts the user for a license upon booting, logical provisioning may fail.
- If a license needs to be applied to the newly created VM in the logical session, then the license should be provided in the logical template → provisioning → product-key parameter of the VM in the template, and Guest customization also should be enabled.

Updating the Logical Templates

The logical templates have to be edited prior to doing a logical template provisioning. The following sections explain the inputs that have to be done prior to scheduling a logical template.

Updating the Baseline VM Image File on Logical Template

The baseline VM image associated with the VM object in the template has to be updated to refer the SCVMM baseline image. See Updating Repository Elements for SCVMM Baseline Images for details.

1. Select the VM object in the template and click the Image Files tab.

HyperV - Logical	. 🛛 🖶 *As	50 - Cluster H	🗱 AS50 - Cluster	Hy	🗱 Microsoft-Host(S	» ₅	
	VirtualMachin	Link_2 e_1	VLAN Auto				
Template Link							
E Properties							
						2	• ×
Resource		Path	Repository	Version	Tag		Add
Provisioning	Templat	Win Template 2	GPOC_SCVMM				Remos
Inventory							150110
Configuration Files							Up
Image Files							Drown
							DOWN

Figure 21. Image Files Properties

- 35. If there is already associated image file, click **Remove** to remove the existing association.
- 36. Click Add to select the gold VM image to be associated with the VM object.
- 37. Select the **Show all Image files** checkbox to open the list of configured repositories in the system.
- 38. From the Microsoft SCVMM Repository, select the VM image that needs to be deployed.

Figure 22. Select VM Template file

0	No Filtering)			* *
	Name SCVMM_Repository SCVMM_Repository SCVMM_Repository	Path eb6c2c41-0c0b-4922-a851	Repository Ni SCVMM_Repo	Select All Deselect All

Updating the Hardware Profile to use the SCVMM Hardware Profile (optional)

The logical template can consume the existing SCVMM hardware profile for provisioning VMs. In order to use it, the provisioning parameter **hardwareprofile** of the virtual machines in the logical templates have to be modified with the existing hardware profile in the SCVMM as shown in the below in Figure 23.



NOTE: For cloning the existing VMs, the hardware profile does not have to be updated.

Customizing the Guest OS (Optional)

Active System Manager supports Windows 2012 and Windows 2008 based Guest OS for VM creation. However, during Windows 2008 VM creation, Active System Manager is not able to retrieve the VM IP address. In this case, the Windows 2008 VM does have an IP address, but Active System Manage is not able to retrieve the IP address using the supported API set.

NOTE: Due to SCVMM limitations, you can customize the guest OS only on a VM template clone, not on the Gold VM.

In order to customize the Operating System that will be on the VM, complete the following steps.

- 1. Open the logical template.
- 2. Select Virtual Machine object.
- 3. In the **Provisioning** tab, set **GuestCustomizationRequired** to **true** and update the following properties:
 - a. DomainName
 - b. TimeZone
 - c. AnswerFile
 - d. LocalUserName

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- e. LocalUserPassword
- f. DomainUserName
- g. DomainUserPassword
- h. GuiRunOnceCommands
- i. ProductKey



Using DHCP for Assigning IP Address to the Provisioned VMs

Provisioned VM are assigned their IP address using DHCP or the Static IP Pool which is defined in the logical template. By default, VM fetches its IP address from the IP Pool which is created in SCVMM during the physical template session. User can change the IP addressing to DHCP using the interface level provisioning parameter **IPAddressType**; default value for this provisioning parameter is **Static** which can be changed to DHCP.

HyperV - Logical Template with Two VM connected to a VLAN X It Link editor It Link editor VIRTUAL VIRTUAL VIRTUAL [GigabitEthernet] VIRTUAL [GigabitEthernet] VIRTUAL [GigabitEthernet] VIRTUAL [GigabitEthernet] VIRTUAL [GigabitEthernet] Interface Interface Inventory Provisioning

Figure 25. Updating IP address type

Provisioning Logical Templates

The following sections describe different configuration of provisioned workflows, which can be run only on top of a fully successful physical session.

NOTE: The default value for the **InstallVirtualizationGuestServices** parameter is **True**. Changing this parameter to **False** can cause your orchestration to fail.

Two VMs with a VLAN

The *HyperV-Logical Template with Two VM Connected to a VLAN* template can be used to create VM workloads by scheduling a logical template over existing physical resources sessions.





When scheduled, this template performs the following sequence of operations:

- Clones and powers on two Hyper-V VMs based on the gold VM Image associated with the template.
- Creates network site corresponding to VLAN component on logical network

NOTE: While scheduling a template with VM having multiple interfaces, even if VM is mapped to a Host having multiple interfaces, all the interfaces of VM are mapped to the same interface of the Host.

Single Virtual Machine with VLAN

The HyperV-Logical Template with One VM Connected to a VLAN template can be used to create VM workloads by scheduling logical template over existing physical resources session.



When scheduled, this template performs the following sequence of operations:-

- Clones and powers on a single Hyper-V VMs based on the gold VM image associated with the template.
- Creates network site corresponding to VLAN component on logical network

NOTE: While scheduling a template with VM having multiple interfaces, even if VM is mapped to a Host having multiple interfaces, all the interfaces of VM are mapped to the same interface of the Host.

Microsoft SQL Workloads

The HyperV-Microsoft SQL Workloads logical template can be used to create SQL workloads by scheduling logical template over existing physical resources session.





Launching Applications from the Logical Session

Once the VMs are provisioned the user can also launch custom applications as applicable from Active System Manager.

- 1. Select a VM in a session.
- 2. Right-click on the VM, and select Applications.
- 3. Select the Application to be launched.



Figure 29. Launch Applications

Operation Center View—Administrative Operations

The following sections describe Active System Manager administrative operations.

Managing Rack Servers

The following operations are provided on the Active System Manager **Server Operation Center** view to perform administrative tasks:

- Attach Server Profile—Used to apply the configurations associated with Server Profile on the rack server using iDRAC
- Detach Server Profile—Used to remove the configurations associated with Server Profile from the rack server
- Update firmware on server—Used to update firmware for BIOS, iDRAC, Lifecycle Controller etc. on the rack server

E Operation Center	Resource Information	
Resources Server Templates And Profiles	奎 Resource Details	
⊡ — System [Domain] — — — AS50_1 [AS50]	📄 Properties 🔊 🗊 Sessions 🛛 🖶 Templates 🛛 🚀 Monitorin	ng 🗍 🚸 Audit 🛛
🕀 👘 EQL [DellEqualLogic]	Name 🔺	Value
🕀 🗄 LANSwitch 1 [PowerConnect]	AssetTag	ServerB
E SANSwitch 1 [PowerConnect]	BIOSVersion	1.6.0
ServerA [Servers]	BP12G+0:1.Firmware	1.00
ServerB [Servers]	Broadcom Gigabit Ethernet BCM5720 - 90:B1:1C:06:7F	7.6.14
	Broadcom Gigabit Ethernet BCM5720 - 90:B1:1C:06:7F	7.6.14
🗄 🗉 🔲 ManagedEquipment	Broadcom Gigabit Ethernet BCM5720 - 90:B1:1C:06:7F	7.6.14
	Broadcom Gigabit Ethernet BCM5720 - 90:B1:1C:06:7F	7.6.14
	CPU	2
	📄 domainId	1
		170 150 0 104
	Supported Operations	
	<u>Attach Server Profile</u> Attach Server Profile	
	👷 <u>Detach Server Profile</u> Detach Server Profile	
	Update firmware on server Change firmware version	on server

Figure 30. Managing Rack Servers

Managing SCVMM Objects

This section describes how the following managed objects can be directed through the **Operation Center** view.

- Host Groups
- Clusters
- Hyper-V Hosts

The SCVMM discovery can be initiated using the Active System Manager Discovery facility, which populates the **Operation Center** view.

To initiate the discovery of SCVMM, various discovery elements, and their corresponding attributes can be provided in the **Discovery Configuration Setup** wizard; steps for configuring the discovery setup for a SCVMM are detailed in Discovering Active System 50 Components section.

Host Groups

Host groups along with their attributes are discovered and populated in the Active System Operation Center view. This view enables methods to be executed on host groups.

Poperation Center		Resource Information		
Resources Server Templates And Profiles	I	👳 Resource Deta	ils	
Name Sta				
E Gystem [Domain]		Properties Sessio	ns 🛛 🖶 Templates 🗍 🖧 Monitor	ina 🛛 🚸 Audit 🗍
⊞…L⊗ AS50_1 [AS50]	Ш.		-	
🖃 🙅 HyperV [Cloud]	Ш.	Name 🔶		Value
🖻 📄 SCVMM [SCVMM]	Ш.			
🖃 🖷 📄 All Hosts [HostGroup]	Ш.			
🖻 🖧 AS50HyperVCluster.ASM.com [Cluster]	Ш.			
😽 WIN12-9V2T8X1.ASM.com [Host] Co				
🗄 🖷 🦲 ManagedEquipment	Ш.			
🖻 ··· 🔡 MatrixSwitch	Ш.			
LAN1	Ш.			
LAN2	Ш.			
SAN1	Ш.			
SAN2	ll:	4		
	IF	•		
		👻 Supported Ope	rations	
	$\ $	🕂 Add Host	Add host in SCVMM Server	
		& Create Cluster	Create Cluster	
		& Create Host Group	Create Host Group	
		🐑 <u>Remove Host Group</u>	Remove Host Group	

Figure 31. Managing Host Groups

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Clusters

Clusters are also discovered and populated in the Operation Center view.



Figure 32. Managing Clusters

Hyper-V Hosts

Hyper-V hosts are discovered and populated in the **Operation Center** view. This view enables methods to be executed on hosts for on demand provisioning, as required.



Figure 33. Managing Hyper-V Hosts

Managing EqualLogic Storage

Table 9 lists and defines the group members provided in the Active System Manager EqualLogic storage **Operation Center** view.

Operation	Description
PoolCreate	Creates a new storage pool on an EqualLogic storage array.
PoolAddMember	Adds a storage array to a given storage pool on an EqualLogic storage array.
PoolDelete	Deletes a storage pool present on an EqualLogic storage array.
PoolRename	Renames an existing storage pool present on an EqualLogic storage array.

Table 9. EqualLogic Group Members

Managing Volume

Table 10 lists and defines the operations provided in the Active System Manager EqualLogic Storage Operation Center view.

Operation	Description
VolumeOffline	Offlines a volume present on an EqualLogic Storage Array
VolumeOnline	Onlines a volume present on an EqualLogic Storage Array
VolumeResize	Resizes a volume present on an EqualLogic Storage Array

Table 10. EqualLogic Volumes

Managing Storage

The following operations are provided on the Active System Manager EqualLogic Storage **Operation Center** view for performing administrative tasks:

- Storage group-level supported operations
- Storage member-level supported operations

Table 11. Storage Group-Level Supported Operations

Operation	Description	Input Parameter
PoolCreate	Creates a new storage pool in the storage group.	poolName–Storage pool name

Table 12. Storage Member-Level Supported Operations

Operation	Description	Input Parameter
ConfigureRAIDPolicy	Configures the required redundant array of independent disks (RAID) level on an EqualLogic Storage Array.	raidType {raid6 raid10 raid50}
UpgradeFirmware	Upgrades the firmware image on an EqualLogic Storage Array.	imageName—Image from repository.
		delayInMinutesAfterRestart— Introduce a delay between when the firmware is installed and the member storage device is restarted, the RA connects the storage after this defined delay (in minutes) after the restart parameter.

Dashboard Reports

The following sections describe the following Active System Manager dashboard reports:

- Resource Allocation by Sessions Report
- Resource Allocation by Hosts Report
- Resource Allocation by Groups Report
- •

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- Top Ten Resource Allocation Report
- Top Ten Resource Utilization Report
- •

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- VM Utilization by Session Report
- Host Utilization (Consolidated) Report
- •

- Cluster Utilization (Consolidated) Report
- Storage Utilization (Consolidated) Report

Resource Allocation by Sessions Report

This report provides resource allocation data for sessions which are in a *Running* state. This report displays CPU and memory allocations grouped by Active System Manager session, and can be used to view the CPU and memory allocation in a data center environment at that particular instant.

	TEMPLATES						
				- 10			Add Wildger Entern
CPUMetrony Uti	CPU U	Greph tilization in %			Resource Allocation D	By Group	
в —	Clek and strag t	n Wie plot area to zon	N #	1		CPU Allocation	
	6		Ret	et zoom			
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8 "				2.5M8	25		- 2.594
E 13		-		CME:	65 1		245
a 1 21		1					
1		and the second s			. /	1 1	

Figure 34. Resource Allocation by Sessions report

Resource Allocation by Hosts Report

This report provides resource allocation data for hosts on which some virtual resources are provisioned in running sessions. This report displays CPU and memory allocations grouped by hosts, and can be used to view a current usage of the CPU and memory allocation per host for a data center.



Figure 35. Resource Allocation by Hosts report

Resource Allocation by Groups Report

This report provides resource allocation data for virtual resources that are utilized in sessions owned by members of a group (grouped by group name). This report also captures the current allocation by groups and works for CPU and memory allocation.



Figure 36. Resource Allocation by Groups report

Top Ten Resource Allocation Report

This report includes three sub-options for different groupings:

- **By Host**—Lists top ten hosts which are currently in use and have allocated maximum CPU and memory attributes.
- By User—Displays the list of top 10 users who are currently consuming the maximum number of CPUs and memory.
- By Group-Similar to By User, but consolidated at the group level.



Figure 37. Top Ten Resource Allocation report

Top Ten Resource Utilization Report

This report is similar to the Top Ten Resource Allocation report; however, this report provides utilization data as opposed to allocation. The required data is made available using a monitoring method that continuously keeps polling the device, VM, or cluster for current utilization data. The data is persisted in the database and the last polled data is provided to the user. This report can be grouped by the following:

- VMs
- Hosts
- Clusters
- Storage



Figure 38. Top Ten Resource Utilization report by cluster





VM Utilization by Session Report

This report provides the most recent data for CPU and memory utilized on any VM, grouped by sessions. This data is available in terms of percentage with respect to the allocated limits.



Figure 40. VM Utilization by Session report

Host Utilization (Consolidated) Report

This report displays information about how much capacity is being utilized on a host by all running VMs, with respect to the allocated capacity. This report is available for CPU and memory attributes.



Figure 41. Host Utilization (Consolidated) report

Cluster Utilization (Consolidated) Report

This report is similar to the Host Utilization (Consolidated) report, except that it uses clusters.



Figure 42. Cluster Utilization (Consolidated) report

Storage Utilization (Consolidated) Report

This report provides storage utilization as a percentage of allocated storage for clusters.




CPU and Memory Utilization Showback Report

This report provides CPU and memory utilization of hosts in percentage over a period of given time (for example, weekly, daily, and hourly).



Figure 44. CPU & Memory Utilization Showback Report

You can view the data for a specific time interval (with a minimum time interval limit of ten minutes between two data points). To view the specific time interval data, select a point and drag the mouse to a desired data point; this will show the data for the specific time interval. You can reset the time interval to default by clicking **Reset Zoom**.

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Appendix A—Bill of Materials

Table 13 displays the bill of materials, grouped by resource adapters.

Table 13. Bill of Material–Resource Adapters

Vendor	Model	Description
Dell	Servers	Dell Servers resource adapter using WSMAN and RACADM CLI used for provisioning the servers
Dell	EqualLogicStorageArray	Management of EqualLogic storage
Dell	EqualLogicStoragePool	Management of EqualLogic storage pool
Dell	PowerConnect-7024	Management of ToR switches
Template	HyperVLib	Microsoft Host Provisioning on Racks
Microsoft	Host	Hyper-V 2012 Management
Microsoft	Virtual Machine	Hyper-V Virtual Machine Instance Management
Microsoft	SQLWorkload	Microsoft SQL Instance Management

Table 14 displays the list of bill of materials, grouped by templates.

Table 14. Bill of Material–Templates

ID	Description	Workflows
1–Physical	AS50 - Cluster Hyper-V 2012 Hypervisor Deployment	Hyper-V Imaging using NFS Network ISO Boot, Hyper-V Clean Up, and Create Additional Storage.
2—Logical	Hyper-V - Logical template with one VM connected to a VLAN	Built-in orchestration.
3—Logical	Hyper-V - Logical template with two VMs connected to a VLAN	Built-in orchestration.
4—Logical	Hyper-V - Microsoft SQL Workload	Hyper-V - Microsoft SQL Workload

Appendix B— Planning Worksheet

Table 15.	IP Address	Configuration
-----------	------------	---------------

Equipment	IP Address	Subnet Mask	Gateway	Username	Password
iDRAC for all R620					
PowerConnect 7024 LAN Switch1					
PowerConnect 7024 LAN Switch2					
PowerConnect 7024 SAN Switch1					
PowerConnect 7024 SAN Switch2					
EqualLogic Storage Array Group Management					
EqualLogic Storage Array Group on iSCSI Network					
Active System Manager Appliance					
SCVMM					

VLAN for NIC Configuration

Table 16. VLAN Configuration

Traffic Type	VLAN
Management	
Live Migration	
Cluster Private	
VM Workload	
iSCSI / iSCSI Management	

NOTE: Static IP range for the VM Workload subnet should be available as a prerequisite for running the orchestration.

Appendix C—SCVMM Setup Requirements

Considerations after creating the SCVMM Server:

- The SCVMM server should be a member of an Active Directory domain.
- OpenSSH should be installed on the SCVMM server.

Installing OpenSSH Server on a SCWMM Server

Windows X64 OpenSSH 6.2p1 version should be installed on SCVMM server.

- 1. Download the Windows X64 setupssh-6.2p1-2(x64)-v1.exe version, available at: http://www.mls-software.com/opensshd.html
- 2. Double-click the setup.exe for installation.

Options that needs to be selected during OpenSSH installation:

- a. In Install under Local System or SSHD_Server Account window, select Run As SSHD_SERVER (Required for W2k3) and click Next.
- b. In Setup Privilege Separation window, select Yes (Required for W2K3) and click Next.
- c. In Create Password and Group files, select Domain Users, and click Next.

Configuring OpenSSH Server on a SCWMM Server

- 1. Execute the cmd prompt.
- 2. Go to bin directory inside OpenSSH installation directory path:

cd <openSSHInstallationDirPath>/bin

3. Create group file using mkgroup command:

mkgroup -d > ..\etc\group

4. Create passwd file using mkpasswd command:

mkpasswd -d -u Administrator > ..\etc\passwd

- 5. Open etc/sshd_config file inside openSSH installation directory path using Notepad.
- 6. Append the following text to the file:

Subsystem sftp internal-sftp

PubkeyAuthentication no

NOTE: Comment out existing Subsystem line before adding the new lines.

7. Restart opensshd services using following commands:

net stop opensshd

net start opensshd

8. Verify the SSH connectivity using any available SSH tool.

Appendix D—Enabling SSH in PowerConnect 7024 switches

- 1. Telnet to the Powerconnect switch or open the console connection to the switch.
- 2. Switch to enable mode.
- 3. Execute the following commands on the switch:

Configure !DSA key generation crypto key generate dsa !RSA key generation crypto key generate rsa !enable SSH server ip ssh server line ssh

login authentication default enable authentication default end

write

Appendix E—Firmware and Software Base Lineup

The following table lists the minimum recommended firmware/software versions.

Device	Revision
Host Server(Del	I PowerEdge R620)
BIOS	1.6.0
Backplane Firmware	1.03
iDRAC7 Enterprise	1.40.40
LCC (Life Cycle Controller) 2	1.1.5.165,A00
Network Controller Broadcom FW	7.6, A00
Network Controller Broadcom Driver (NetXtreme II)	17.6.0
Windows Server 2012	Datacenter
Storage Controller H710 FW	21.2.0-0007
Storage Controller H710 Driver	5.2.220.64, A00
EqualLogic HIT KIT	4.6
OpenManage Essentials	1.2
Active System 50 Dell PowerEdge	e R420 Hyper-V Management Server
Windows Server 2012	Datacenter
BIOS	1.5.2
iDRAC7 + 8GB vFlash	1.40.40
LCC (Life Cycle Controller)	1.1.5.165, A00
Network Controller Broadcom Firmware	7.6, A00
Network Controller Broadcom Driver (NetXtreme II)	17.6.0
Storage Controller H710 Firmware	21.2.0-0007

Table 17. Firmware and Software Versions

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Device	Revision						
Host Server(Dell PowerEdge R620)							
Storage Controller H710 Driver	5.2.220.64, A00						
EQL HIT Kit	4.6						
SAN HQ 2.	6.0						
OpenManage Essentials	1.2						
Switch a	and Storage						
Dell Networking 7024 Switch Firmware	5.1.0.1 (A13)						
EqualLogic PS6100X Firmware	6.0.5						

Appendix F—FAQs

1. Volumes on EqualLogic Array are not removed for cancelled sessions. This wastes storage space and consumes iSCSI connections. How do you remove the volumes?

User should manually cleanup the unused volumes on the EqualLogic storage array and iSCSI connections after session is canceled.

2. Where is the VM created? Is there way to specify in which datastore it gets created?

The VM will be automatically created in the Cluster Storage Volume (CSV) to provide high availability. The location of the VM cannot be customized.

3. Is there a way to revert a template or import the original template?

The original templates are available on the appliance in folder **\$HOME/DefaultTemplates**.

As a best practice:

- a. Make a copy of the template and make the required modification in the cloned template.
- b. Keep the copy of the original templates by exporting them locally on a client machine and importing it as needed.
- 4. What is the difference between synchronize and discovery?

During the discovery process, the following information is discovered and added to Active System Manager:

- Inventory information
- o Operation center view
- o Link information

During the synchronize process, information is discovers only for the **Operation Center** view hierarchy.

5. Are SSI properties overwritten when upgrading the RA?

Yes, upgrading the RA will override the **ssi.properties** file. As a best practice, before upgrading the RA, backup the RA directory by following the steps given below:

- a. Log in to the Active System Manager server as delladmin user.
- b. Run the following commands:

cd \$HOME/asm-galeforce/gf/common/integrations

- cp -r <manufacturer>/<model> <manufacturer>/<model>_<CurrentDate>
- 6. Will images and firmware released after this release of Active System Manager 7.1 work with Active System Manager 7.1?

Images and firmware versions that are released after Active System Manager 7.1 should work.

7. What is the base level configuration for Dell PowerConnect 7024 switches?

The base level configuration is the minimal set of configurations running on the switches that bring them to an operational state. Additional details of these configurations can be found in the embedded sample configuration file.

8. Is it a requirement to create pools on the Dell EqualLogic storage array?

Creating pool is optional. If there are no user-defined pools on the EqualLogic Storage array, then a newly created volume becomes part of the default storage pool. Pools can be created by executing the **PoolCreate** method on the EqualLogic group object in the **Operation Center** View.

9. Is HTTPS supported for connecting to Active System Manager?

Yes, HTTPS is supported on Active System Manager. The default HTTPS port is 50500.

10. Is terminal server connectivity required for Dell PowerConnect 7024 switches?

SSH connectivity is mandatory, but telnet connectivity is optional for PowerConnect 7024 switches.

11. Does the default password of the Active System Manager appliance get updated?

The appliance login password can be changed. If the password is changed, software repositories that are configured on Active System Manager Appliance should be modified with the new password.

12. How would a user know what are the optional parameters in an orchestration step method?

Parameters with the * sign suffixed in front of them are mandatory and the ones without * sign are optional.

13. How do you change the hostname of the Active System Manager server?

To change hostname of the Active System Manager server:-

- c. Log in to the Active System Manager as the root user.
- d. Open the /etc/sysconfig/network file, and specify the new host name in the HOSTNAME field.
- e. Update the host name in the /etc/hosts file.
- f. Run the reboot command to restart the server.
- g. Log in to the server as a delladmin user after restarting the server.
- h. Run the hostname command to verify if the new host name is configured as host name.
- i. Stop the Active System Manager services.
- j. Change the directory using cd \$HOME/asm-galeforce/gf/sbin
- k. Run ./updateHostName.sh and follow the instructions to configure the host name in the Active System Manager installation.
- I. Delete the following files from the /home/delladmin/directory:

- .ssh/id_rsa
- .ssh/id_rsa.pub
- m. Create a password less connection using the command ssh-keygen.
- n. Start the Active System Manager Services. For details on starting and stopping the Active System Manager services, see Configuring Active System Manager Services.
- 14. Can I change the default SFTP installation path for Hyper-V RA?

You can change the default SFTP installation path for Hyper-V RA. The default SFTP installation path is externalized in the Microsoft Host RA **ssi.properties** file. You can update this property from the client in case installation path is different from default SFTP installation path. For example:

SSIOBJ:scriptPath C:\\Program Files\\OpenSSH\\home

15. When Active System elements are discovered separately, why does template validation fail?

This is as per design, the DIS links are discovered only when the complete Active System discovery is performed. DIS links are required for Active System Manager template validation

16. Interface mapping (DIS links) between the end devices is not correct as they don't represent the actual location of the end devices.

Links discovered during discovery don't represent the actual connection between the end devices, those are dummy connections. The DIS links are discovered so that we could represent connection/links in the ASM template. This allows scheduling of the ASM templates with links in ASM template.

17. While creating/editing the server profile template or attaching server profile to a server, can I select firmware files from different repositories?

No, selected firmware files must belong to a single repository. For example, if you choose iDRAC and BIOS firmware for update; both should be from the same repository.

18. How to remove a server from a session, either to free-up the unused servers or because the server has broken.

The server can be removed from the session but no cleanup operations are currently performed while removing a specific server from the session. You must cancel the session and then remove the server from a session.

19. When a failover cluster is created, Active System Manager enables Live Migration settings for all networks in the cluster.

To disable the Live Migration settings:

- a. Log in to one of the provisioned Hyper-V hosts of the cluster with the domain credentials provided during provisioning.
- b. Open the failover cluster snap-in, Start, → Administrative Tools, → Failover Cluster Manager.
- c. In the Failover Cluster Manager, expand the Cluster and go to Networks.
- d. Right-click on Networks and select Live Migration Setting.

e. In the Live Migrations Setting dialog box, select only the Cluster Network 2 (Live Migration) as shown below and click OK.

NOTE: Make sure that the right Cluster Network is selected for the Live Migration by checking the values for the network connections like **vEthernet(LiveMigration)**.

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Figure 45. Live Migration Settings

20. After the physical orchestration is completed, the Allow cluster network communication on this network option is incorrectly selected for Live Migration and iSCSI.

To disable the Allow cluster network communication on this network option:

- a. Log in to one of the provisioned Hyper-V hosts of the cluster with the domain credentials provided during provisioning.
- b. Open the failover cluster snap-in, Start, → Administrative Tools, → Failover Cluster Manager.
- c. In the Failover Cluster Manager, expand the Cluster and go to Networks.
- d. Right-click on Cluster Network 2 (Live Migration) and select Properties.
- e. In the Cluster Network 2 Properties dialog box, select Do not allow cluster network communication on this network and click OK.

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Figure 46. Cluster Network 2 Properties

- f. Right-click on Cluster Network 4(iSCSI) and select Properties.
- g. In the Cluster Network 4 Properties dialog box, select Do not allow cluster network communication on this network and click OK.

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Figure 47. Cluster Network 4 Properties

NOTE:

- Make sure that the right Cluster Network is selected for the Live Migration by checking the values for the network connections like vEthernet(LiveMigration).
- Make sure that the right Cluster Network is selected for the iSCSI by checking the values for the network connections like NIC2 or similar.
- 21. Why are orchestrations failing on servers with dual SD cards?

If a server has dual SD cards, the BIOS setting must be set to mirror mode to avoid orchestration failures.

22. How do I increase the number of logical deployments that can run concurrently on the system?

For better performance of the individual sessions, the appliance has a default limit of 10 parallel actions. Logical sessions are long-running, so deploying more than 10 at a time will cause the system to queue up sessions greater than 10. This will also prevent other logical or virtual actions from being run until the logical jobs clear. If you need to run large batches of logical jobs, the SSH session limit can be increased to allow other actions to be performed while those jobs are running.

The SSH session limit for parallel execution is set to 10 by default on the appliance. However, the session limit can be configured based on your requirements and if you are facing bottlenecks because of it. Active System Manager has been validated with parallel executions. Therefore, to reduce the waiting time, it is recommended to set the thread pool size and parallel execution count to less than or equal to 50.

To change the Parallel SSH execution limit on the appliance to 50:

- a. Log in as delladmin user.
- b. Open the ./common/etc folder using the following command:

cd asm-galefore/gf/common/etc

- c. Open the **remoteExecServer.xml** file and set the value for the following parameters to less than equal to 50:
 - Set poolsize Attribute in the threadpool node
 - Set executioncount Attribute in maxparallel node
- d. Run the reboot command to restart the server.
- 23. Using Active System Manager, can I create an IP pool based on class A/B/C address in SCVMM?

Active System Manager supports IP pool creation in SCVMM, which utilizes the complete class A/B/C address. Active System Manager does not support dividing a class address into multiple subnets.

If the requirement is to use a class address, which is divided into multiple subnets, then you should manually create the IP Pool in SCVMM and associate the same with the required VLAN in the SCVMM.