# Active System Manager Solution Guide

Active System 800 for Hyper-V

Version 7.1

# Notes, Cautions, and Warnings

**NOTE:** A NOTE indicates important information that helps you make better use of your computer.

**CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.**

**WARNING: A WARNING indicates a potential for property damage, personal injury, or death.**

# Contents

# Introduction to the Active System 800 Solution

Today, many IT organizations are missing deadlines or cannot respond fast enough to customer demands, have insufficient IT budgets, or have to manage trade-offs. In response, convergence in the data center has emerged as a trend in IT to address the growing needs for agility, efficiency, and quality. IT organizations are rapidly adopting converged infrastructure solutions to lower the cost of running critical workloads, enable faster infrastructure deployments, and drive simplicity and speed of management. Below are some high-level solutions for the Dell™ Active System (AS) 800:

- **Rapid and Simple Scalability** — The Dell Active System 800 is a part of the Active Infrastructure family, which includes fully pre-integrated converged infrastructure solutions. As one of the pre-integrated solutions offered, the Dell Active System 800 is a scalable blade server and storage infrastructure designed to support private cloud infrastructures. Able to add compute and storage capacity as needed in a non-disruptive manner, the Active System 800 offers many different configuration options for varying business conditions and sizes for a highly utilized IT infrastructure.
- **Quick and Easy Provisioning** — The Dell Active System 800 allows for more rapid application deployments through minimized design, test, procurement, integration, and configuration phases. One key feature of the Active System 800 is the Active System Manager, which offers streamlined, automated processes, as well as a quick response to dynamic business needs through template-based, modular infrastructure provisioning. This allows IT infrastructures to achieve higher efficiencies and more accurate delivery of IT services. A single IT generalist can manage most common tasks via the streamlined and automated processes delivered through the Active System Manager.
- **Automated and Efficient** — The Dell Active System 800 enables your data center to reach its maximum potential, and reduces the complexity and amount of time spent manually managing storage functions through automation for a more efficient and simplified management. This allows the Dell Active System 800 to support the efficient, agile delivery of applications and IT services made possible by a private cloud infrastructure, delivering true IT as a service through private cloud benefits such as self-service portals and chargebacks.

This document describes the deployment and management of Active System Manager 7.1 on Active System 800 infrastructures.

## Support

Contact Dell technical support by visiting the following web site:

www.dell.com/support/softwarecontacts

## 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:

- Active System 800 Spec Sheet
- Active System 800 Hyper-V Reference Architecture
- Active System Manager 7.1 User Guide
- Active System Manager 7.1 Web Interface User Guide

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

1. Navigate to [www.dell.com/support/manuals](www.dell.com/support/manuals), 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 800-supported components and configurations.

The following table lists the Active System Manager solution for the Active System 800-supported components.

**Active System 800-Supported Components**

| Component | Description | Role |
| --- | --- | --- |
| Compute Cluster | PowerEdge M620 blade servers running Windows Server 2012 Datacenter Edition with Hyper-V role enabled. | Host highly available virtual machines (VMs). |
| Management Cluster | PowerEdge R620 servers running Windows Server® 2012 Datacenter Edition with Hyper-V role enabled. | Host management VMs: Dell Active system Manager, System Center Virtual Machine Manager (VMM) 2012 SP1, EqualLogic SAN HQ and Dell OpenManage Essentials. |
| Storage | Dell EqualLogic PS6110 Series controllers with 24 bay 2.5" SAS enclosures or 12 Bay 3.5" SAS enclosures. | Provide shared storage for the Hyper-V clusters. |
| Converged Network Switches | (2) Dell Networking Force10 S4810s and two Dell Converged I/O modules for the blade chassis (PowerEdge M I/O aggregator or Dell Networking MXL). | Support VM, Live Migration, Management, iSCSI and Cluster traffic. |
| OOB management Switch | (1) Dell Networking S55 | Provide Management connectivity. |

The following table lists the Active System Manager solution for the Active System 800-supported configurations.

**Active System 800-Supported Configurations**

| Configuration | Support |
| --- | --- |
| M1000e chassis and supported blade types (M620) | Support firmware images as per the Active System Manager solution for Active System 800. |
| Dell Force10 Top-of-Rack (ToR) S4810 switches | Supported FTOS and base configuration will be packaged in the virtual appliance. The base configuration should be updated for management IP and virtual LAN (VLAN) per data center deployment need. |
| Dell EqualLogic PS6110 Storage Array | Supported firmware versions will be packaged in the virtual appliance. |
| Hyper-V installation support on blade servers | Windows 2012 Server image |
| Microsoft System Center 2012 | |

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# Active System Manager Deployment

This section describes the options, prerequisites, and methods to deploy Active System Manager.

## Deployment Options

The Active System Manager solution for Active System 800 is packaged as a virtual appliance and is made available for the Windows Server 2012 System Center Virtual Machine Manager (SCVMM):

- Hyper-V virtualization environment — The disk format is virtual hard disk (VHD) for Hyper-V.

For details on deployment, see the following table.

**Deployment Options**

| Virtual Appliance Filenames | Platform |
| --- | --- |
| Dell-ActiveSystemManager-7.1.0.xyztp_Microsoft.zip | Microsoft Windows Server 2012, with Hyper-V |

## Deployment Prerequisites

Before using the Active System Manager solution for end-to-end provisioning of Active System 800 components, make sure that the prerequisites listed in the following table are in place:

**Deployment Prerequisites**

| Specification | Prerequisite |
| --- | --- |
| Connection requirements | Active System 800 units connected per the Active System 800 Reference Architecture and Design Guidelines. |
| Management server requirements | Management server is configured per the Active System 800 Reference Architecture and Design Guidelines. |
| Firmware and BIOS requirements | All equipments must be configured with firmware versions as listed in Appendix B — Firmware and Software Base Lineup section. |
| For the Active System 800 chassis, blade server, and IO Aggregators | <ul><li>CMC for M1000e chassis is configured and has the management IP address and login credentials assigned.</li><li>Server iDRAC and IOA are configured and has the management IP address and login credentials assigned using CMC Management interface.</li></ul> **NOTE:** The user name (root) and password for CMC, IOA, and iDRAC must be identical. |
| Dell Force10 switches (Top-of-Rack [ToR]) | <ul><li>The management IP address is configured for the ToR switches.</li><li>The AS800 base configuration is applied on both the switches.</li><li>VLANs are created on the switches per the Active System 800 deployment specification.</li></ul> |

| Specification | Prerequisite |
|---|---|
| | • The Active System Manager dynamically creates the virtual machine (VM) traffic VLANs. |
| EqualLogic Storage Array | • The management IP addresses are configured for storage array.<br>• All storage array members are added to the group. |
| Microsoft System Center 2012 | • Microsoft System Center 2012 is configured and accessible via the management and hypervisor management network.<br>• Appropriate licenses are deployed. |

# Deploying VHD

The Active System Manager Virtual Hard Disk (VHD) can be imported on to a Hyper-V host using **Import Virtual Machine** option in Hyper-V Manager. When booted, the existing DHCP server assigns the IP address to the Active System Manager VM. . 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**.
2. On the **Locate Folder** page, **Browse** to the location where the VDH is available in the extracted format.
3. Click **Select Folder** and click **Next**.
4. On the **Select Virtual Machine** page, select the **VM** and click **Next**.
5. On the **Choose Import Type** page, select **Register the virtual machine in place (use the existing unique ID)** and click **Next**.
6. On the **Summary** page, click **Finish**.

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

7. Right-click the Virtual Machine and select **Start** to power-on the Virtual Machine.
8. Select the network name. The VM needs to be mapped to the Hypervisor Management Network. All the networks (For example, OOB, Hypervisor Management, vMotion, and VM workloads) are expected to be accessible from the appliance.
9. Right-click the Virtual Machine and select **Connect** to launch the console.

# 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.
   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.

- root
- delladmin
- 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.

   **NOTE:** 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.

   **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 | admin/admin |

# Assigning IP Address to the Active System Manager Appliance

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. Root user credentials are given Key Access Credentials.
3. Navigate to **System → Preferences → Network Connections** .

   The **Network Connections** dialog box is displayed.
4. In the **Wired** tab, select the network interface card (NIC) appliance on which IP address should be configured manually and click **Edit**.
5. In 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**.
7. Open the terminal console by clicking **Applications → System Tools → 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.

# Accessing the Active System Manager Web Client for the First Time

To access the Active System Manager web client, perform the following steps:

> **NOTE:** If you are trying to access the Active System Manager for the first time, you must have a valid license to log on to the Active System Manager web portal.

1. In your internet browser, enter the following URL:

   http://*<Active System Manager server name>*:*<Active System Manager port number>*

   The copyright information displays and after a few seconds, the **Please Sign In** page displays.

2. In the **Please Sign In** page, enter the default **Username** and **Password**, and click **Sign In**.

   > **NOTE:** The administrator can use the factory-supplied default credentials. Using these default credentials, the super administrator can create multiple administrators.

3. In the **License Deployment** page, copy and paste the content of the license file provided in the **License File** text box. Click **Submit** to log on to the Active System Manager.

# Adding Additional Licenses

To add license:

1. Perform one of the following methods:

   – To add license using the web client, click **Settings** → **License** on the menu bar.
   – To add license using the thick client, click **Tools** → **Settings** on the menu bar, and click the **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:

   – First name
   – Last name (optional)
   – Email address
   – 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

## Starting Services Manually

The appliance is configured to start Active System Manager services during start-up.

1. Log in as delladmin user.
2. Execute the following command:

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

./startasm.sh
```

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

## Stopping Services Manually

1. Log in as delladmin user.
2. Execute the following command:

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

./stopasm.sh
```

## Verifying Active System Manager Service Status

1. Log in as delladmin user.
2. Run the following script to display the current status of all services, including the Oracle database status:

```
cd asm-galeforce/gf/sbin

./asmstatus.sh
```

Sample output

```
                Active System Manager Services Status

Installation
----------------
Release Version: 7.1

Build Number: 471

Database
----------------
Vendor: Oracle (Ver: 11.2.0.1.0)

Host: asm-galeforce Port: 1521

Service name: DB11G

Status: Running

Active System Manager Service
---------------------------------
Host: asm-galeforce Port: 40500 Secure Port: 50500

Enterprise: Dell

Lab: DEMO

Status: Running

Domain Services
----------------
1. Domain    : System (Id: 1)

   Description:

   ----------------------------------------------------

   Session server

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

      Status: Running
```

# Installing the Active System Manager Client

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

- Windows
- Linux

This section describes the following installation procedures:

- Installing Active System Manager Client Software on Windows
- Installing Active System Manager Client Software on Linux
- Accessing Active System Manager Using the Windows Client Software

## Installing Active System Manager Client Software on Windows

1. Download the Active System Manager installer:

    – The win64 installer version should be downloaded for 64-bit Windows operating system.

    – The win32 installer version should be downloaded for 32-bit Windows operating system.

2. 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 double-click it.

    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 select to uninstall the existing version already on the system. Once selected, the installer uninstalls the existing version and then exits. To install the new version, restart the installer.

4. Click **Finish** to complete the installation.

## Installing Active System Manager Client Software on Linux

Download the Active System Manager installer:

- The x86_64 installer version should be downloaded for x86_64 operating system.
- The x86 installer version should be downloaded for x86 operating system.

The following procedure describes the steps to install and start x86 version client:

1. Download the **ActiveSystemManager-linux.gtk.x86_7.1.0_xyzt.zip** file.
2. Unzip the file into a specific folder destination on your hard drive.
3. Create an Active System Manager folder and move the file contents to this location.
4. In the console, execute the Active System Manager file.

## Accessing Active System Manager Using the Windows Client Software

To access the Active System Manager through Windows client software, perform the following steps:

1. Launch the client software application.
2. On the **Connect to Active System Manager Server** dialog box, click **Setup**.
3. On the **Setting Up Accounts** dialog box, click **Add**.
4. Enter a unique and descriptive **Account** name for the account and **Server IP** address of the appliance.
5. Click **OK**.
6. Select the account created earlier.
7. Enter the default user name and the password for the appliance.
8. Click **OK** to launch the Active System Manager application.

# Active System Manager Setup

To manage and deploy the blade server in the Active System 800, perform the following operations in the Active System Manager, in sequence:

## User and Group Management

You can manage users and groups within the Active System Manager by either 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 Management — Users and Groups**
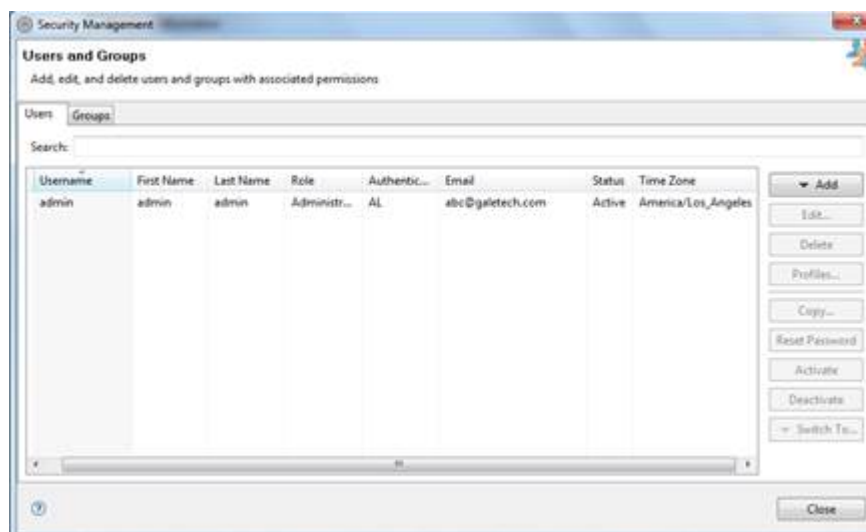


For details on user and group administration, see the "User Profile Management" chapter in the Active System Manager User Guide, which is downloadable from the Active System Manager 7.1 web portal (Help menu) or from the Thick client (Eclipse-based).

# Discovering Active System 800 Components

Discovery of the Active System 800 components includes:

- Dell M1000e Chassis
- Dell M620 Blade servers
- Dell PowerEdge M I/O Aggregators
- Dell Force10 Top-Of-Rack (ToR) S4810 switches
- Dell EqualLogic Storage Array
- Microsoft System Center 2012 Components

## Initiating Discovery

To initiate the Discovery process, perform the tasks in the following sequence:

1. Opening the Discovery Settings
2. Adding Details for the Active System 800 Unit
3. Adding Hyper-V System Properties
4. Starting the Discovery Process

### Opening the Discovery Settings

You can configure the discovery settings in the **Discovery Configuration Setup** editor.

To open the **Discovery Configuration Setup** editor, perform the following steps:

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

### Adding Details for the Active System 800 Unit

✐ **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 (-).

To add details for the Active System 800 unit, in the **Discovery Configuration Setup** editor, click **Add System**. This feature displays the names of the Active System 800 components that will be discovered, for example:

- Dell Chassis
- Dell EqualLogic Storage Array
- Dell Force10

1. For Dell M1000e Chassis, provide the following element properties:

   - **Assettag** — Required. Unique key or name used to import or identify the Dell M1000e Chassis within Active System Manager. For example, Assettag Dell_Chassis_001 (a unique name) can be used to track the chassis in Active System Manager.

   - **Username** — Username to access and manage the Dell M1000e Chassis.

   - **Password** — Password to access and manage the Dell M1000e Chassis.

   - **IP Address** — Required. IP address for the Dell M1000e Chassis CMC. The CMC should be IP reachable from the Active System Manager server.

- **Chassis Fabric Purpose** — Required. Chassis Fabric purpose must be defined for at least one fabric.
- **iDrac Root Password** — Required. iDrac root password that will be set on the servers.
- **IOA/IOM Root Password** — Required. IOA/IOM root password that will be set on the IOAs/IOMs.
- **IOA/IOM SNMPv2 Community** — Required. The SNMPv2 Community string that will be set on the IOAs/IOMs.

2. For the Dell EqualLogic StorageArray system, provide the following element properties:

- **Assettag** — Required. 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. For example, Assettag Dell_EqualLogic_PS6100_1 (a unique name) can be used to track the EqualLogic array in Active System Manager.

- **Username** — Required. User name to access and manage the EqualLogic Storage Array.

- **Password** — Required. Password to access and manage the EqualLogic Storage Array.

- **IP Address** — Required. Management IP address for the EqualLogic Storage Array. The management IP should be reachable (via ping to test) from the ASM server Group IP of the EqualLogic Array should be IP reachable 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 new element in an existing Active System 800 unit, click **Add Element**, select **Dell EqualLogic StorageArray**, and provide required details to initiate discovery.

3. For Dell Force10 Switch (ToR) discovery, provide the following element properties and discovery attributes:

- **Assettag** — Required. Unique key or name for Dell Force10 Switch which is used to import or identify the Dell Force10 Switch in Active System Manager. For example, Assettag Dell_Force10-S4810_1 (a unique name) can be used to track the Dell Force10 Switch in Active System Manager.

- **Username** — Required. Username to manage the Dell Force10 switch.
- **Password** — Required. Password to manage the Dell Force10 switch.
- **IP Address** — Required. Management IP address for the Dell Force10 switch. This should be IP reachable from the Active System Manager server.
- **Role** — (Optional) Top/Bottom.
- **SupportedVLANIDs** — Required. VLAN IDs that could be provisioned on the Top-Of-Rack (ToR) switch. Sample input format (2..1024); the switch supports a VLAN range from 2 to 1,024.

> **NOTE:** The parameters related to Terminal Servers are not applicable for Dell Force10 Switch discovery.

> **NOTE:** The discovery or any other operation for Dell Force10 switches using Terminal Server is not supported in ASM 7.1.

- **Terminal Server IP Address** — Optional. Required if switch to manage is using the Terminal Server port.
- **Terminal Server Port** — Optional. Required if switch to manage is using Terminal Server port.
- **Terminal Server Username** — Optional. Terminal Server username (if configured).
- **Terminal Server Password** — Optional. Terminal Server password (if configured).

## Adding Hyper-V System Properties

1. On the **Active System Manager → System → Hyper-V configuration** , click **Add SCVMM**.
2. For SCVMM discovery, provide the following system properties:

- **AssetTag** — Required. Unique key or name for SCVMM which is used to import or identify from SCVMM in the Active System Manager.

- **Username** — Required. Username to access and manage the SCVMM.

- **Password** — Required. Password to access and manage the SCVMM.

- **IP Address** — Required. IP address for the SCVMM application. This must be IP reachable from the Active System Manager server.

- **SCVMMDomainName** — Required. SCVMM User Domain for log in to the SCVMM application. Admin user domain should be specified with fully qualified domain name.

- **SCVMMFullyQualifiedDomainName** — Required. SCVMM Fully Qualified Domain for log in to the server running SCVMM application.

## Starting the Discovery Process

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

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

   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.

## Updating the Server Resource Instances

After the Active System 800 components discovery process is complete, update the mandatory parameters manually for all the blade servers. These parameters will be used for configuring the Hyper-V Server.

1. On the left navigation menu, click **Inventory**.

   The **Resource Instances** view in the Inventory perspective displays the list of discovered server instances.

2. In the **Resource Instances** view, perform one of the following actions:

   - To update the parameters for a single server instance, right-click a server instance, select **Open**. Update the parameters specified in the following table.
   - To update the parameters for multiple server instances, select multiple server instances, right-click and select **Open with Multi-Editor**. Use the spreadsheet editor that displays to update the parameters specified in the following table.

The parameters listed in the following table should be updated for each host in the ASM inventory. These are required for end-to-end Hyper-V host provisioning.

| Parameter | Description |
| --- | --- |
| WindowsComputerName | Host name to be assigned to the Hyper-V Host.<br><br>NOTE: The **WindowsComputerName** parameter value should not contain more than 15 characters in the inventory. |
| WindowsDomainAdminUser | Windows Domain Admin User name used for adding the host to Domain Controller. |
| WindowsDomainPassword | Windows Domain Admin User Password used for adding the host to Domain Controller. |
| WindowsDomainFullyQualifiedName | Windows Domain FQDN name used for adding the host to Domain Controller (For example, abcdomain.com). |
| WindowsDomainName | Windows Domain name used for adding the host to Domain Controller (For example, abcdomain). |
| WindowsPassword | Local Admin Password to be configured on the Hyper-V host. |

| Parameter | Description |
|---|---|
| WindowsProductKey | Windows Product Key to be used for the installation. |

# Software Repositories Available in the Active System Manager Virtual Appliance

Configuring the following repositories is described in the Active System Manager User's Guide, Chapter 6 – Firmware Management:

- Updating Repository Elements for Dell Servers

Configuring the following repositories is described in this document:

- Updating Repository Elements on EqualLogic Firmware Repository
- Updating Repository Elements for EqualLogic Storage Resource Pools
- Updating Repository Elements for Windows Image Repository
- Updating Repository Elements for IOA Switch configuration and Images
- Updating Repository Elements for ToR Switch Configurations and Images
- Updating Repository Elements for Hyper-V Baseline Images

## Updating Repository Elements on EqualLogic Firmware Repository

The EqualLogic Storage Array repository contains firmware images for updating the firmware on EqualLogic Storage Arrays.

1. Open the **Software Repositories** view in the setup perspective by clicking **Setup** → **Software Repositories** on the thick client.
2. In the **Software Repositories** view, right-click and select **Repositories**.
3. On the **Software Repository — Select Repository Type** dialog box, click **Software Repository.**
4. Click one of the following option, select **Equallogic Firmware Repository** from the list, and then click **Next**.

    – **New** — To create a new repository.
    – **Existing** — To update the existing repository.

5. Specify the Name of the repository, and update the host (IP address), user name, password, port and the base directory (location on the server where firmware images are present) and click **Next**. This access information is for Active System Manager Appliance as EqualLogic Firmware images are managed on the appliance.

    Repository Properties:

    – **Host IP** — Address, can be ASM server IPAddress.
    – **Port** — Repository Server Port, by default its value is 22.
    – **Username** — Repository server use name, can be ASM server user name.
    – **Password** — Repository server password, can be ASM server password.
    – **Base Directory** — Repository server base directory path where firmware image files are copied. For example, **/home/delladmin/EqualLogicFirmwareImages**.

6. In the **Software Repository — Repository Elements Discovery and Association** dialog box, click **Discover** to display all the firmware images available on the image server.

    NOTE: Before initiating 'Discover', make sure firmware image files should be copied at required location: **/ home/delladmin/EqualLogicFirmwareImages**

7. Click **Associate** to associate the image file with the required **Resource Types** (Dell EqualLogic Storage Array and EqualLogic Storage Pool).

## Updating Repository Elements for EqualLogic Resource Pools

The EqualLogic Storage Resource Pool repository contains the information of the Storage Pools available on EqualLogic Storage Arrays.

To update the repository elements:

1. Open the **Software Repositories** view in the setup perspective by clicking **Setup** → **Software Repositories** on the thick client.
2. In the **Software Repositories** view, right-click and select **Repositories**.
3. On the **Software Repository — Select Repository Type** dialog box, click **Software Repository**.
4. Click one of the following options, select **EqualLogic Storage Resource Pool Repository** from the list, and then click **Next**.

   – **New** — To create a new repository.
   – **Existing** — To update the existing repository.

5. Specify the **Name, Host**, **Username**, and **Password**, and then click **Next**.

   These parameters correspond to storage Management IP address, username, password respectively.

6. On the **Software Repository — Repository Elements Discovery and Association** dialog box, click **Discover** to display all the storage pools available on the Storage Array.
7. Right-click the selected Resource Pool and set the **Type** to Image File, and click **Finish**.
8. Click **Associate** to associate the storage pools with the required **Resource Types** (Dell EqualLogicStorageArray and EqualLogic Storage Pool), and click **Finish**.

## Updating Repository Elements for Windows Image Repository

To update these repository elements, perform the following steps:

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, click **Software Repository**.
4. Perform one of the following actions, and then click **Next**.

   – To create a new repository, click **New** and select **NFS ISO Repository** from the list.
   – To update the existing repository, click**Existing** and select **Windows Image Repository** from the list.

5. Specify the repository name and update the **Host** attribute value with the IP address of the Active System Manager appliance. Click **Next**.

   ![NOTE icon] **NOTE:**

   The **Username** and **Password** are configured with default appliance user name and password. These need to be updated if the default user name or password is updated.

6. On the **Software Repository — Repository Elements Discovery and Association** dialog box, click **Discover** to initiate the discovery of the repository files. A list of discovered elements are displayed.

   This step is required only if an ISO image is added to the appliance.

7. Right-click the selected discovered elements and set the **Type** to **Image File**, and click **Finish**.
8. Click **Associate** to associate the selected element with the Microsoft Host resource type, and click **Finish**.

## Updating Repository Elements for IOA Switch Configuration and Images

To update the repository elements, perform the following steps:

1. Open the **Software Repositories** view in the setup perspective by clicking **Setup → Software Repositories** on the thick client.
2. In the **Software Repositories** view, right-click and select **Repositories**.
3. In the **Custom Repository — Select Repository Type** dialog box, select **Software Repository**.
4. Click one of the following options, select **Dell IO Module Firmware Repository** from the list, and then click **Next**.

   – **New** — To create a new repository.
   – **Existing** — To update the existing repository.

5. Specify the Name, Description, and update the following Repositories Properties, and then click **Next**.

   – **Host** — Repository Server IP Address, can be ASM server IPAddress.
   – **SSH Username** — Repository server username.
   – **SSH Password** — Repository server password.
   – **BaseDirPath** — Image nad configuration file path after <TFTPRootPath>, >, by default its value is 'Dell/IOA'.
   – **TFTPRootPath** — Repository server base directory path where Dell Force10 switch image files are copied. For example, if image files are located at **/var/lib/tftpboot/images** then base directory path value would be **/var/lib/tftpboot**

6. Click **Discover** to initiate the discovery of the repository files. The list of discovered elements in the repository displays.

   > **NOTE:** Before initiating 'Discover', please make sure IOA switch image and configuration files should be copied at required location. For example, if base directory path is **/var/lib/tftpboot** and BaseDirPath is **/Dell/IOA** then image files should be copied at following location: **/var/lib/tftpboot/Dell/IOA/images**

7. Click **Associate** to associate the selected element with the **Dell IOA** resource type, and click **Finish**.

## Updating Repository Elements for ToR Switch Configurations and Images

To update the repository elements, perform the following steps:

1. Open the **Software Repositories** view in the setup perspective by clicking **Setup → Software Repositories** on the thick client.
2. In the **Software Repositories** view, right-click and select **Repositories**.
3. On the **Custom Repository — Select Repository Type** dialog box, click **Software Repository**.
4. Click one of the following options, select **Force10 ToR Switch Configurations and Images** from the list,and then click **Next**.

   – **New** — To create a new repository.
   – **Existing** — To update the existing repository.

5. Update the Name, Description, and update the following Repositories Properties and click **Next**.

   – **Host** — Repository Server IP Address, can be ASM server IPAddress.
   – **Port** — Repository Server Port, by default its value is 69.
   – **Username** — Repository server user name.
   – **Password** — Repository server password.
   – **Communication Protocol** — Protocol used to communicate (ssh/telnet).

- **Base Directory** — Repository server base directory path where Force10 switch image files are copied. For example, if image files are located at **/var/lib/tftpboot/images** then base directory path value would be **/var/lib/tftpboot**

6. Click **Discover** to initiate the discovery of the repository files. The list of discovered elements in the repository displays.

   📝 **NOTE:** Before initiating 'Discover', make sure Dell Force10 switch image and configuration files should be copied at required location. For example if base directory path is **/var/lib/tftpboot** then image files should be copied at following location **/var/lib/tftpboot/images**.

7. Right-click the discovered element, set the **Type** to **Configuration File or Image File**, and click **Finish**.

8. Click **Associate** to associate the selected element with the **Dell Force10Switch** resource type, and click **Finish**.

## Updating Repository Elements for Hyper-V Baseline Images

This repository contains Hyper-V baseline images for creating VM clones.

To update the repository elements for Hyper-V baseline images, perform the following steps:

1. Open the **Software Repositories** view in the setup perspective by clicking **Setup** → **Software Repositories** on the thick client.

2. In the **Software Repositories** view, right-click and select **Repositories**.

3. In the **Software Repository — Select Repository Type** dialog box, click **Software Repository**.

4. Click one of the following options, select **Microsoft SCVMM Repository** from the list, and then click **Next**

   - **New** — To create a new repository.
   - **Existing** — To update the existing repository.

5. Specify the repository name and update the repository properties of SCVMM host (IP address), username, and password and click **Next**.

6. Click **Discover** to initiate the discovery of the repository files. The list of VMs managed by the SCVMM displays.

7. Right-click the discovered element, set the **Type** to **Image File**, and click **Finish**.

8. Click **Associate** to associate the selected element with the **Microsoft** resource type, and click **Finish**.

# Configuring Networks

This section describes the network configuration required for orchestration and end-to-end configuration. For more information about networks, see the Active System Manager 7.1 User Guide Chapter 10, "Network Management". The various networks have to be configured prior to executing an orchestration:

## Accessing the Network Configuration Setup

You can configure new networks and modify default networks in the **Networking Configuration – Networking Setup** view. To open this view, on the menu bar, click **Tools** → **Discovery** → **Networking** .

## Configuring the Networks

Active System 800 comes with five preconfigured networks. You should modify the networks based on the environment in which the AS 800 being used.

## Configuring an Existing Network

To configure an existing network:

1. On the menu bar, click **Tools → Discovery → Networking** .
2. On the **Networking Configuration – Networking Setup** view, select a network type in the **Networking Configuration** section.

   The list of existing networks that are part of the selected network type will be listed in the **Active System Manager** section.
3. In the **Active System Manager** section, select the network, and click **Edit**.
4. On the **Edit Default** dialog box, add or modify the networking parameters (for example VLAN ID, DHCP \ static) as specified in the following table. Click **OK**.

   The follow table summarizes the list of values that needs to be configured for an existing network.

   **Network Configuration Details**

   | Entry | Details |
   | --- | --- |
   | Name | Specifies the name of the Network.<br><br>📝 **NOTE:** For every Network created, the name of the network should contain one of the below strings:<br><br>– HypervisorManagement<br>– SANiSCSI<br>– Workload<br>– HyperVClusterPrivate<br>– vMotionLiveMigration |
   | Description | Describes the network configuration. |
   | VLAN ID | Specifies the VLAN ID configured on the switch for the network type. |
   | Configure Static IP address ranges | Enables you to configure static IP addresses. Select this check box to configure static IP addresses. |

## Configuring a Static Network

To configure a static network:

1. On the menu bar, click **Tools → Discovery → Networking** .
2. In the **Networking Configuration – Networking Setup** dialog box, select a network type in the **Networking Configuration** section.

   The list of existing networks that are part of the network type will be listed in the **Active System Manager** section.
3. In the **Active System Manager** section, select the network, and click **Edit**.
4. On the **Edit Default** dialog box, select the **Configure static IP address** ranges check box.

   The options to configure the static IP Address range are displayed.
5. Perform one of the following actions and click **OK**.

   – To add new IP address range, click **Add IP Range** , specify the **Starting IP Address** and **Ending IP Address**. Click **Save IP Range**
   – To modify or configure the existing IP range, select an IP address range, click **Edit IP Range** and specify the **Starting IP Address** and **Ending IP Address**. Click **Save IP Range**

   For details on configuring existing network parameters, see <u>Configuring an Existing Network</u> section.

The following table summarizes the list of values that needs to be configured for a network.

**Network Configuration Details**

| Entry | Details |
| --- | --- |
| Name | Specifies the name of the Network. |
| | NOTE: For every Network created, the name of the network should contain one of the below strings:<br>– HypervisorManagement<br>– SANiSCSI<br>– Workload<br>– HyperVClusterPrivate<br>– vMotionLiveMigration |
| Description | Describes the network configuration. |
| VLAN ID | Specifies the VLAN ID configured on the switch for the network type. |
| Configure Static IP address ranges | Enables you to configure static IP addresses. Select this check box to configure static IP addresses. |
| Gateway | Specifies the gateway of the network. |
| Subnet Mask | Specifies the subnet mask of the network. |
| Primary DNS | Specifies the Primary DNS. |
| Secondary DNS | Optional. Specifies the Secondary DNS . |
| DNS Suffix | Specifies the domain name. |
| Starting IP Address | Specifies the starting IP address. |
| Ending IP Address | Specifies the ending IP address. |

## Configuring Default Server Templates

The Active System 800 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" and for more information on configuring the default templates, refer to the Server Profile Templates document.

Perform the following steps if multiple VM Workload VLANs are required:

1. On the **Active System Manager Operation Center** view, right-click a server template in the **Server Templates And Profiles** tab, and click **Edit**.
2. In the **Edit Server Profile Template** wizard, navigate to the **Network Settings** window by clicking **Next**.
3. Click **Add** and specify the required parameters in the **Add vNIC Configuration** to add multiple VM Workload VLANs.

NOTE: For every Server Template created, the name of the server template should not contain spaces.

NOTE: Server Template for Active System 800 Hyper-V should have following names of VM NICs.

- NIC_1

Map the Default Server Template networks with the networks configured on the Hyper-V host as specified in the following table.

**Default Hyper-V Host Mapping**

| 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 Ntework |
| SAN iSCSI | DefaultSANiSCSI | iSCSI Network to access EqualLogic storage array. |

NOTE: The following networks should have unique VLAN ID with the naming convention "Workload- <VLANID>", for example, Workload-20.

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

NOTE: 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.

NOTE: Attaching more than one Server Profile Template to a physical orchestration template will cause the physical orchestration to fail.

NOTE:

The network names should contain following substring for enabling RA to identify the 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.
- iSCSISAN network should contain "iSCSI" substring.

NOTE: Hypervisior Management, LiveMigration, Cluster and SAN iSCSI network must be configured with static IP Address configuration.

# Physical Templates and Orchestration

## Multiple Blade Server for Cluster Provisioning

Use the **AS800 - Hypervisor Deployment HyperV 2012 - Cluster** template to install Microsoft Windows 2012 on an HDD disk using ISO Boot.

You can specify one or more blade servers using these templates for creating a cluster.

**Multiple Blade Server for Cluster Provisioning**
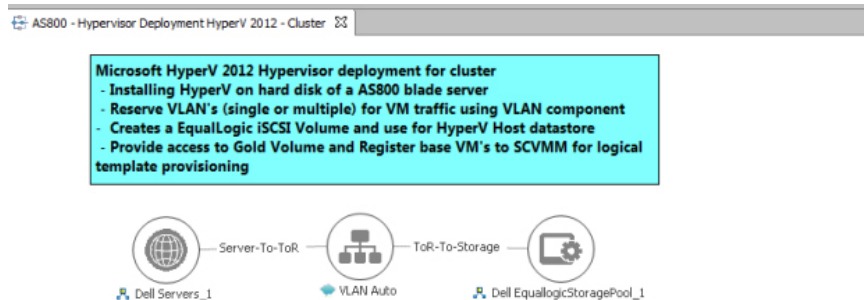


While scheduling the template, user would be prompted to provide values for the following orchestration parameters:

**NOTE:**
The parameters such as **ServerProfileTemplate** with an icon associated with it are mandatory.

**Orchestration Input Parameters**

| Category | Parameter | Input Type | Description |
|---|---|---|---|
| Hyper-V Imaging | WindowsServerSystemLanguage | Mandatory | Windows Server System Language which should be used for configuring Hyper-V machine. |
| | WindowsServerTimeZone | Mandatory | Windows Server Time Zone which should be used for configuring Hyper-V machines. |
| | WindowsOperatingSystem | Mandatory | Windows operating system used for imaging blade servers. |
| | SCVMMServerIP | Mandatory | SCVMM ServerIP address |

| Category | Parameter | Input Type | Description |
|---|---|---|---|
| | HyperVHostGroup Name | Mandatory | Hyper-V Host group Name that's get created on SCVMM and all Hyper-V host are added in host group. If a new host group other than "All Hosts" needs to be specified, then use the following convention to add anew host group: "All Hosts\<new host group name>" |
| | HyperVInstallationImage | Mandatory | Windows 2012 image from imaging the blade server. |
| | ServerProfileTemplate | Mandatory | Server Profile template which should be used for hardware configuration for blade servers. |
| | HyperVClusterName | Mandatory | Cluster Name that is get created on SCVMM and all HyperV host are added in cluster |
| | | | NOTE: The **HyperVClusterName** parameter name can contain only alphanumeric characters, and the following special characters: colon (:), period (.), and dash (-)." |
| Network | LogicalNetworkName | Mandatory | Name of Logical Network created on HyperV Host. |
| | VMNetworkName | Mandatory | Name of VM Network created on HyperV Host. |
| | HyperVClusterIPAddress | Mandatory | IP Address for cluster |
| Storage | ClusterVolumeSize | Mandatory | Datastore size (in GB) to be provisioned on Hyper-V host machines for cluster provisioning. |
| | iSCSIVolumeSubnet | Mandatory | Subnet of the iSCSI volume. |
| | QuorumVolumeSize | Mandatory | Size for Quorum Volume Size (in GB) on HyperV Host. |
| | QuorumVolumeName | Mandatory | Name of Quorum volume need to be create on Hyper-V host machines. |
| | HyperVISCSIStoragePrefix | Mandatory | Prefix for Hyper-V ISCSI storage. |
| | StoragePoolName | Optional | Name of the storage pool. |

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

1. Reserves single or multiple VLANs for VM traffic using a VLAN component. If the VLANs reserved in the session are not already configured on the ToR switches, then the VLANs are created and tagged to appropriate port-channels.

2. IOA Configuration based on Networks defined in Server Profile template and VLAN defined in VLAN component.

   VLAN's associated with networks in the Server Profile template and VLAN defined in the VLAN component in the physical template are created on the IOA server facing interfaces as tagged VLANs.

3. NIC Partitioning as defined in Server Profile template.

4. Sets NIC Attributes as defined in Server Profile template, which is disabled for Active System 800.

5. Creates the ISO files for each server dynamically based on the Server IP Address, Hostname, Name server values provided in the database.

6. Mounts the ISO using iDRAC Virtual Media on all the servers and initiates the installation process.

7. Mount the OS Deployment drivers available in the iDRAC MASER Partition. The OS drivers for Microsoft Windows 2012 must be available on the MASER Partition. In case latest drivers are not installed then use ASM firmware image option / iDRAC Web Console to load the drivers.

8. Mount the Windows Installation ISO using NFS service and initiate the Windows installation. Post installation step includes:

    a. Configuration of following roles / services

        * Hyper-V

        * Failover-Clustering

        * Remote-Desktop-Service

        * Multi-Path

    b. Configure NIC Team. The script is using all the 10Gb interfaces in UP state as member of the NIC Team

    c. Configure the network switches as per the reference architecture document

    d. Install BACS and HIT KIT software

    e. Configure iSCSI Target on the server

    f. Configure the external iSCSI storage accessible on the server. Currently all the volumes which are accessible to server are mounted on the server

    g. Add the host to the domain, if the domain credentials are provided.

    h. Add the domain account to the Local Administration group.

9. Create two volumes on the EqualLogic Storage Array:

    a. The volumes are created per physical session based on the size specified in the global parameters for ClusterVolumeSize and QuorumVolumeSize.

    b. The authentication of the new volumes is configured based on the iSCSIVolumeSubnet specified as the global parameter in the orchestration. For example, "1.1.1.*"

10. Add all the hosts in the session to the SCVMM Host-Group.

11. Create Hyper-V Cluster (if not already exists) on the specified SCVMM.

12. Add hosts to the Hyper-V cluster.

13. Convert the Volume created for cluster as Cluster Shared Volume (CSV).

14. The datastore created in the orchestration is used for provisioning the VM in the logical workload templates. Provides access to Gold volume and using Gold volume, creates base VMs.

# Associated Orchestrations with Cluster Templates

Each physical template has three orchestrations associated with it:

On-demand Orchestrations
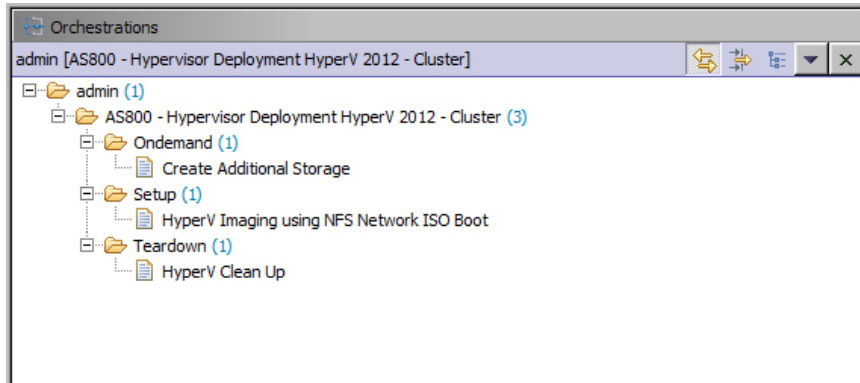
- **Ondemand**— Create Additional Storage This orchestration can be executed on-demand when the session is in a Running state.
- **Setup**—HyperV Imaging using NFS Network ISO Boot This orchestration executes when template provisioning starts and the session is in the Setting-Up state.
- **Teardown**— TeardownThis orchestration executes when the template provisioning starts and the session is in Cleaning–UP state.

# Additional Storage for Cluster

For additional storage, or datastore needed on a cluster, reserved through the Active System Manager, user can execute on-demand orchestration from a running session.

For executing on-demand orchestration, open the session by double-clicking it. On the session, right-click on the session and select **Create Additional Storage** orchestration for execution .

Orchestration performs the following sequence of operations:

- Creates new volume on EqualLogic storage.
- Allows access to specific Hyper-V cluster.
- Creates a data store on Hyper-V cluster.

# Updating Physical Templates

To update the cluster and standalone templates that require specific data before scheduling a template for cluster provisioning (for example, to increase the blade server count for cluster and update the VLAN for template), perform the following steps:

To update the blade server count for the cluster:

1. In the **Template** editor, select the blade server.
2. In the **Properties** section, click the **Resource** tab.
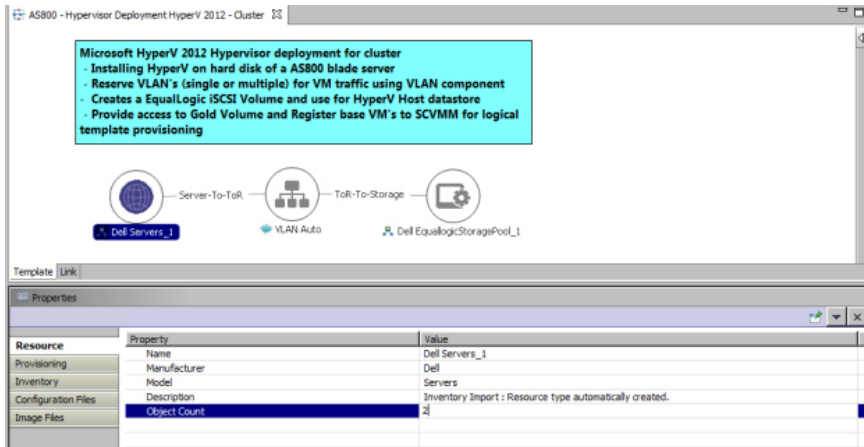
3. Click the **Object Count** field and specify the number of blade servers.

To update the VLAN Parameters:

1. In the **Template** editor, select the VLAN component.

   > 📝 **NOTE:** The VLAN defined in the VLAN component are the Workload VLAN's, other VLAN's should be statically configured on the ToR switches.

2. In the **Properties** section, click the **Provisioning** tab.
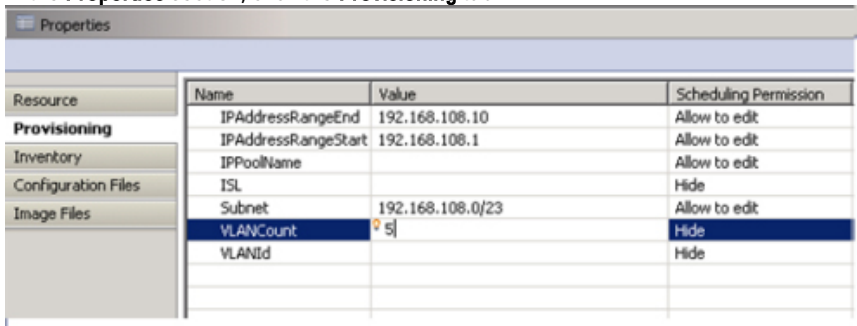


3. Update the VLAN parameters in the following fields:
   - **VLANCount** — Specify the number of VLANs to be provisioned.
   - **VLAN Id** — Specify the VLAN ID range. For example, (100..104),106
4. Press Ctrl + S or click **Save** on the thick client to save the template.

# Providing Values to the Orchestration Operation Parameters

You can specify the parameter values for an orchestration operation using the **Specify Input Values** dialog box.

To access the **Specify Input Values** dialog box and add values to the orchestration parameters, perform the following steps:

1. In the **Orchestration** editor, drag an operation from the **Available Operations** view pane to the **Orchestration View** pane.

2. In the **Specify Input Values dialog** box, you can specify the parameter values for an operation using the following methods:
   - **Pass by value** — In the **Parameter** section, you can type the values directly. The specified value is added to the parameter.

– **Pass by reference** – Under **Possible Values** section, select the **Primary Source** and **Secondary Source** from the drop-down list. Expand the source and then click the check box next to value. You can select multiple values. The selected values are added to the parameter. The system will resolve the actual value of these parameters at runtime.

**NOTE:** These methods can be used interchangeably as required. However, if you have already selected a value for a parameter from the **Possible Values** section, and now you want to modify by typing in the value, then make sure that you clear the check box next to the selected value in the **Possible Values** section. Therefore, the system can understand that this is "Pass by value" method.

5

# Workload Provisioning Using Logical Templates

This section describes the following workload provisioning options using the Logical templates.

> 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
- Single Virtual Machine with a VLAN
- Updating a Baseline VM Image on Logical Templates
- Pre-requisite to Provision a Virtual Machine

## Two VMs with a VLAN

The **HyperV – Dual VM Sample** template can be used to create VM workloads by scheduling a logical template over existing physical resources sessions, to consume the compute and storage resources of specific physical components.

**Two VMs Connected to a VLAN**
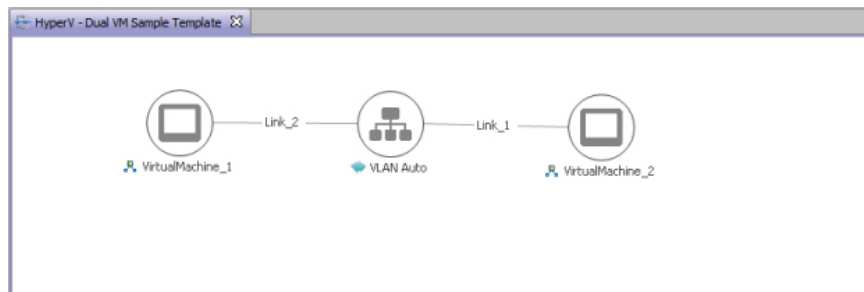


When scheduled, this template performs the following sequence of operations:

- Clones and powers on two Hyper-V VMs based on the SCVMM templates or Gold VM Image associated in the template.
- Configures network adapters corresponding to VLAN component on VM Network during the clone process.
- VM provisioned are assigned their IP address using DHCP or Static IP Pool which is defined in the logical template. By default, VM learns 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; default value for this provisioning parameter is **Static** which can be changed to **DHCP**.

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

After the VMs are provisioned, the user can also launch custom applications using custom methods.

To launch an application:

1. Right-click a VM in a session.
2. Select **Applications**.
3. Select the application to be launched.

# Single Virtual Machine with a VLAN

The **HyperV – Single VM Sample Template** with one VM connected to a VLANlogical template can be used to create VM workloads by scheduling logical template over existing physical resources session, to consume the compute and storage resources of specific physical components.

**Single VM Connected to a VLAN**



When scheduled, this template performs the following sequence of operations:-
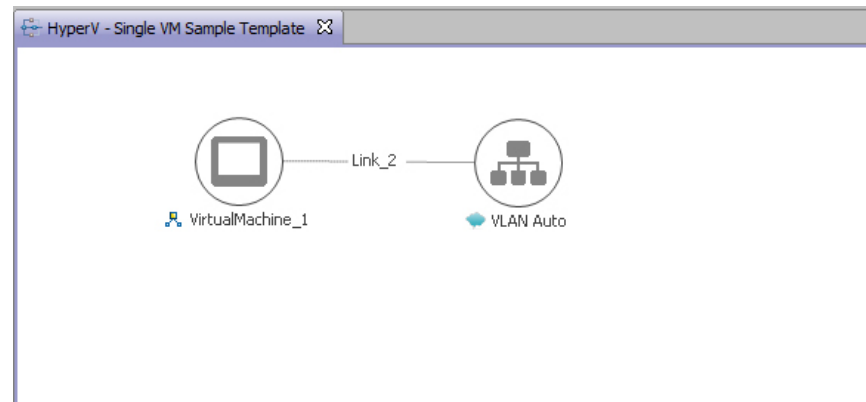
- Clones and powers on a Hyper-V VM based on the SCVMM templates or Gold VM Image associated with the template.
- Configures network adapters corresponding to VLAN component on VM Network during clone process.
- VM provisioned are assigned their IP address using DHCP or Static IP Pool which is defined in the logical template. By default, VM learns 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; default value for this provisioning parameter is **Static** which can be changed to **DHCP**.

# Updating a Baseline VM Image on Logical Templates

To update the baseline VM image that is already associated with the VM object in the template, perform the following steps:

1. In the **Templates** view, double-click the template.
2. In the **Template** editor, select the VM object.

   The template properties are listed in the **Properties** view.
3. In the **Properties** view, click the **Image Files** tab, and perform on of the following actions:

   a. To remove the VM image that is already associated with the VM object, select the image file, and click **Remove**.
   b. To add the gold VM image, click **ADD**, and select the VM image from the **Elements — Select Image Files** dialog box.

# Pre-requisite to Provision a Virtual Machine

- **HardwareProfileName**— To provision Virtual Machine from VM template which is defined in SCVMM library, user needs to provide the hardware profile name.

  This parameter is optional if Virtual Machine is going to provision from Base VM.

- **DynamicMemoryMinimumMB** — Since provisioning parameter 'EnableDynamicMemory' is set to True by default , used needs to provide the value of 'DynamicMemoryMinimumMB' and its value should be less than the value of RAM (default 1024 MB), given in ASM Logical Template->Virtual Machine->Inventory.

  User can skip this parameter by setting 'EnableDynamicMemory' to False.

- **GuestCustomizationFlag** — The default value of **GuestCustomizationFlag** is False.

  If user wants to customize the guest OS, set the value of **GuestCustomizationFlag** as True and provide the value of following provisioning parameter.

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

    – LocalUserName
    – LocalUserPassword
    – DomainName
    – DomainUserName
    – DomainUserPassword
    – TimeZone
    – GuiRunOnceCommands

# Operation Center View—Administrative Operations

This section describes the administrative operations available in the **Operation Center** view:

- [Managing Dell Blade Servers](#)
- [Managing Dell IOA Switch](#)
- [Managing Dell Force10 ToR Switch](#)
- [Managing Dell EqualLogic Storage](#)
- [Managing Hyper-V Objects](#)

## Managing Dell Blade Servers

Blade servers along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on the blade servers for on-demand provisioning, as required.

**Blade Server Operations**

| Operation | Description |
| --- | --- |
| Attach Server Profile | This method attaches a server profile to a server. |
| Detach Server Profile | This method detaches a server profile from a server. |
| Power Off Server | This method is used to power off the blade servers using server iDRAC. |
| Power On Server | This method is used to power on the blade servers using server iDRAC. |
| Update firmware on server | This method applies firmware DUPs components (LC, iDRAC, BIOS) on a server. |

## Managing Dell IOA Switch

Dell IOA along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on Dell IOA for on-demand provisioning, as required.

**Dell IOA Switch Operations**

| Operation | Description |
| --- | --- |
| Configure IOA Switch | This method is used to upgrade or downgrade a firmware version on an I/O module. |

## Managing Dell Force10 ToR Switch

Dell Force10 ToR switches along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on the Dell Force ToR switches for on-demand provisioning, as required.

**Dell Force10 ToR Switch Operations**

| Operation | Description |
|---|---|
| Configure Switch | This method is used to upgrade or downgrade a firmware version and upload the configuration file on a Dell Force10 ToR switch. |

# Managing Dell EqualLogic Storage

This section describes operations that can be performed from **Operation Center** view on the following EqualLogic Storage objects:

- Managing Storage Array Group
- Managing Storage Array Pool
- Managing Storage Array Pool Member
- Managing Storage Volume

## Managing Storage Array Group

EqualLogic Arrays Group along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on EqualLogic Array Group for on-demand provisioning, as required.

**Storage Array Group Operations**

| Operation | Description |
|---|---|
| PoolCreate | Creates new Storage Pool on an EqualLogic Storage Array. |

## Managing Storage Array Pool

EqualLogic Storage Array Pool along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on EqualLogic Storage Array Pool for on-demand provisioning, as required.

**Storage Array Pool Operations**

| Operation | Description |
|---|---|
| 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. |

## Managing Storage Array Pool Member

EqualLogic Storage Array Pool Member along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on EqualLogic Storage Array Pool Member for on-demand provisioning, as required.

**Storage Array Pool Member Operations**

| Operation | Description |
|---|---|
| Configure Raid Policy | This method configures the required redundant array of independent disks (RAID) level on an EqualLogic Storage Array. Configure RAID type to one of the following RAID types: raid5, raid6, raid10, raid50, raid6-nospares, raid10-nospares, raid50-nospares, raid6-accelerated |
| Upgrade Firmware | This method upgrades or installs another version of the firmware. |

## Managing Storage Volume

Volume on EqualLogic Storage along with their attributes are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on EqualLogic volume for on-demand provisioning, as required.

**EqualLogic Group Members**

| Operation | Description |
|---|---|
| VolumeOffline | Sets a volume present on an EqualLogic Storage Array to offline. |
| VolumeOnline | Sets a volume present on an EqualLogic Storage Array to online. |
| VolumeResize | Resizes a volume present on an EqualLogic Storage Array |

# Managing Hyper-V Objects

This section describes operations that can be performed from **Operation Center** view on following SCVMM managed objects:

- Hyper-V Host Group
- Hyper-V Clusters
- Hyper-V Hosts
- Hyper-V Virtual Machines

## Hyper-V Host Group

Hyper-V Host Group along with their attributes, are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on Hyper-V host group for on demand provisioning, as required.

**Hyper-V Host Group Operations**

| Operation | Description |
|---|---|
| Add Host | This method adds a host in SCVMM server. |
| Create Cluster | This method adds cluster in SCVMM server. |
| Create Host Group | This method creates new host group. |
| Remove Host Group | This method removes a host group. |

## Hyper-V Clusters

Hyper-V Clusters along with their attributes are discovered and populated in the Active System Manager Operation Center view. This view enables methods to be executed on clusters for on-demand provisioning, as required.

**Hyper-V Cluster Operations**

| Operation | Description |
| --- | --- |
| Add FileShare | This method adds fileshare to a cluster in SCVMM Server. |
| Remove FileShare | This method removes fileshare from cluster in SCVMM Server. |
| AddHost to Cluster | This method adds a host to cluster in SCVMM Server. |
| Remove Cluster | This method removes a cluster from SCVMM Server. |

## Hyper-V Hosts

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

### Hyper-V Hosts Operations

| Operation | Description |
| --- | --- |
| Add FileShare | This method adds a fileshare to host in SCVMM Server. |
| Move Host | This method moves a host to another existing Host Group. |
| Remove Host | This method removes host from SCVMM Server. |
| Enter Maintenance Mode | This method takes a host into maintenance mode. |
| Exit Maintenance Mode | This method takes a host out of Maintenance Mode. |
| Display Resource Utilization | This method views the resource utilization (Memory and Storage usage) of the host. |
| Remove FileShare | This method removes fileShare from host in SCVMM server. |
| Remove Host From Cluster | This method removes a host from a cluster in SCVMM Server. |

## Hyper-V Virtual Machines

Hyper-V Virtual Machines, along with their attributes, are discovered and populated in the **Active System Manager Operation Center** view. This view enables methods to be executed on Hyper-V Virtual Machines for on-demand provisioning, as required.

### Hyper-V Cluster Operations

| Operation | Description |
| --- | --- |
| Migrate VM | This method migrates VMs from one host to another host. |
| Power Off VM | This method is used to power off a VM. |
| Power On VM | This method is used to power on a VM. |
| Resume VM | This method is used to Resume a VM. |
| Suspend VM | This method is used to suspend a running VM. |
| VM Capabilities | This method is used to view capabilities of VM. |

# Dashboard Reports

## Resource Allocation by Sessions Report

This report provides resource allocation data for sessions that 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 for particular time periods.

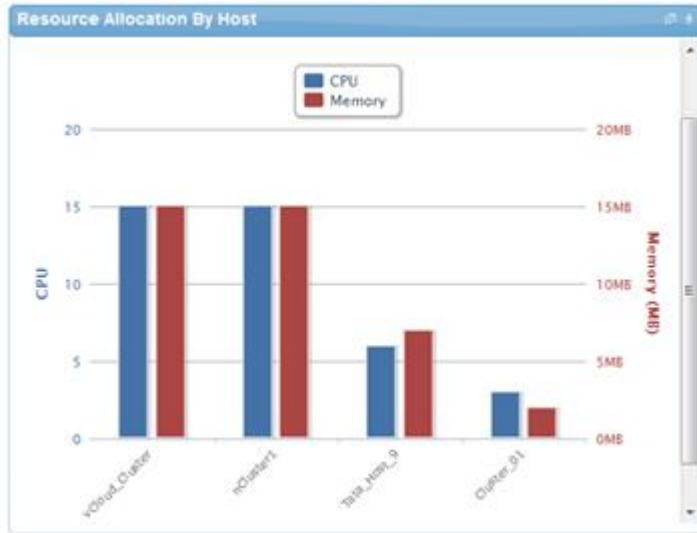**Resource Allocation by Sessions report**
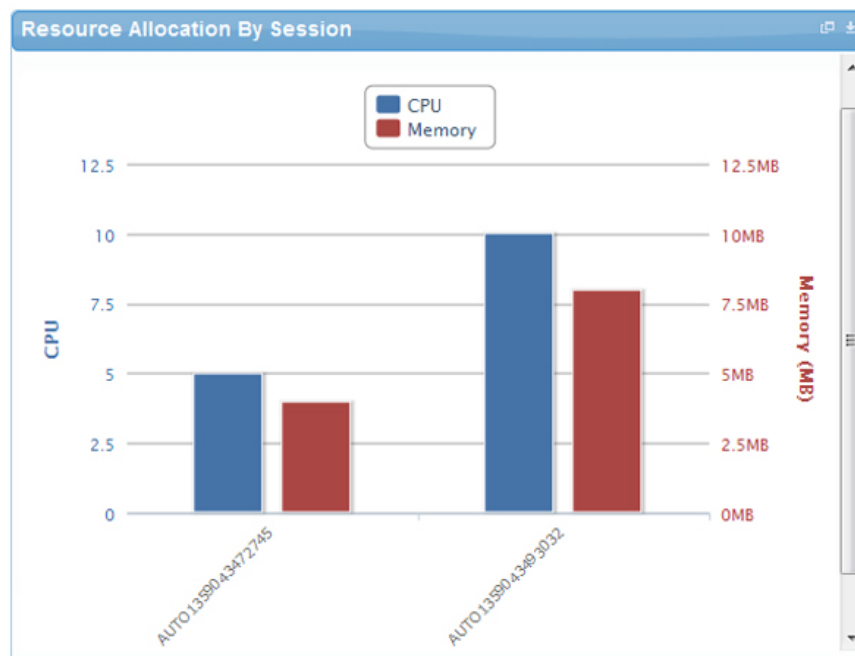


## Resource Allocation by Hosts Report

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.

**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.

**Resource Allocation by Groups Report**
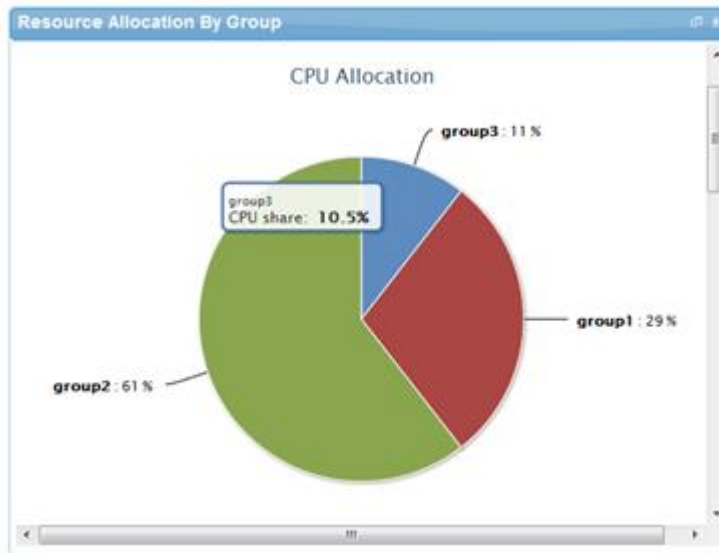


# Top Ten Resource Allocation Report

This report includes three sub-options for different groupings:

- By Host—Lists top ten hosts that 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.

**Top Ten Resource Allocation Report**
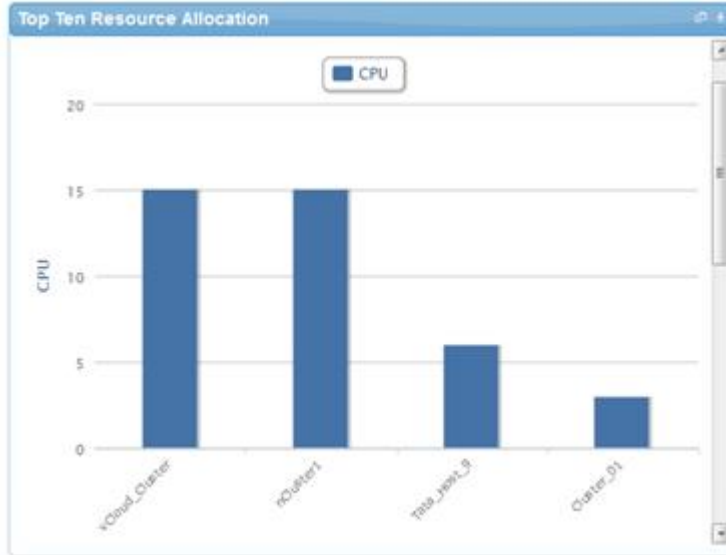


# Top Ten Resource Utilization Report

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

**Top Ten Resource Utilization Report by Cluster**
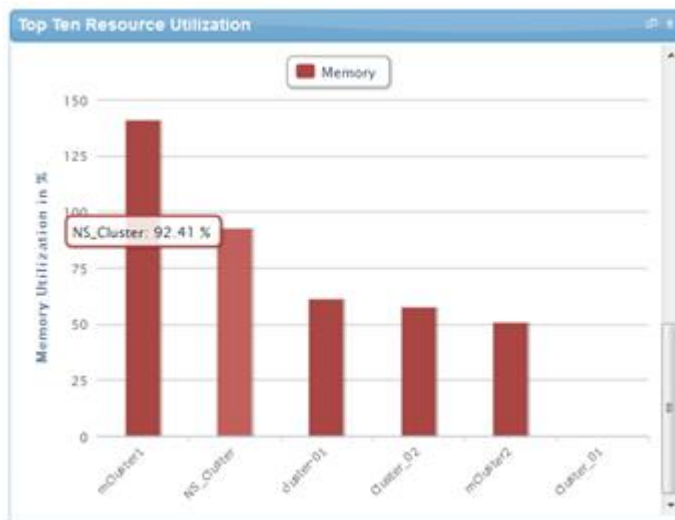
**Top Ten Resource Utilization report by host**
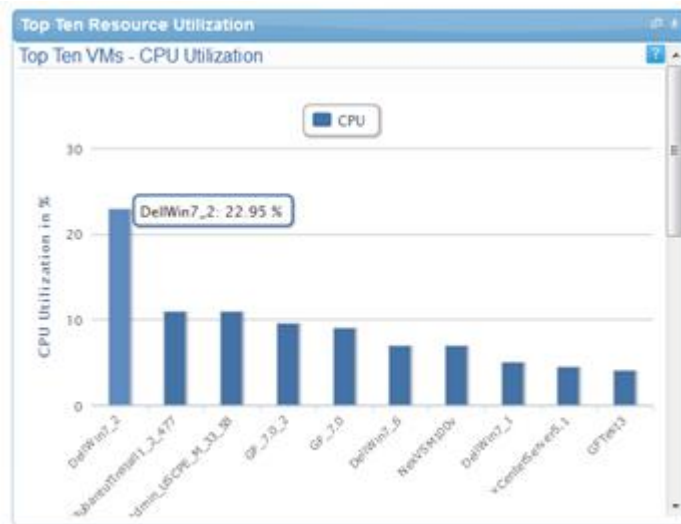


# VM Utilization by Session Report

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.

**VM Utilization by Session report**
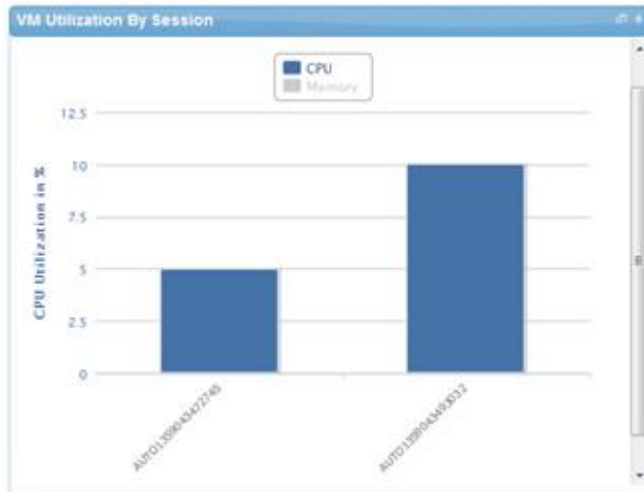


# Host Utilization (Consolidated) Report

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.

**Host Utilization (Consolidated) Report**
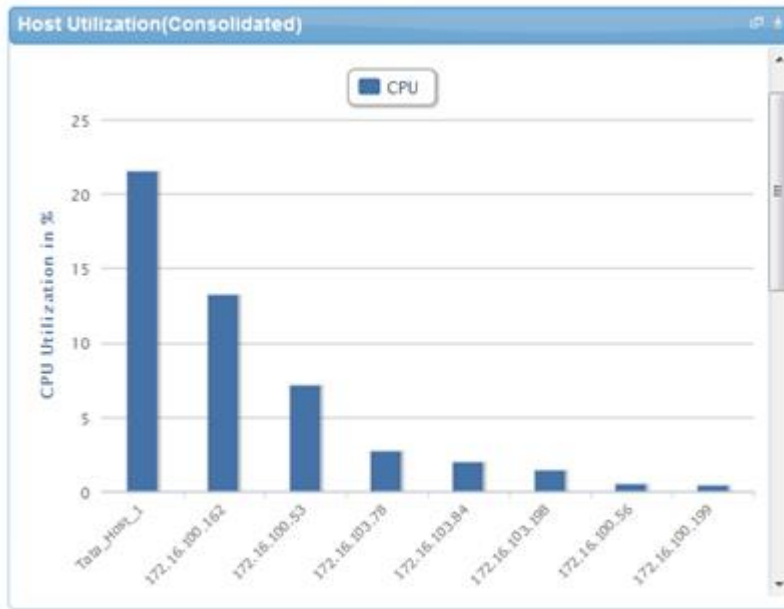
# Cluster Utilization (Consolidated) Report

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

**Cluster Utilization (Consolidated) Report**



# Storage Utilization (Consolidated) Report

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

**Storage Utilization (Consolidated) Report**
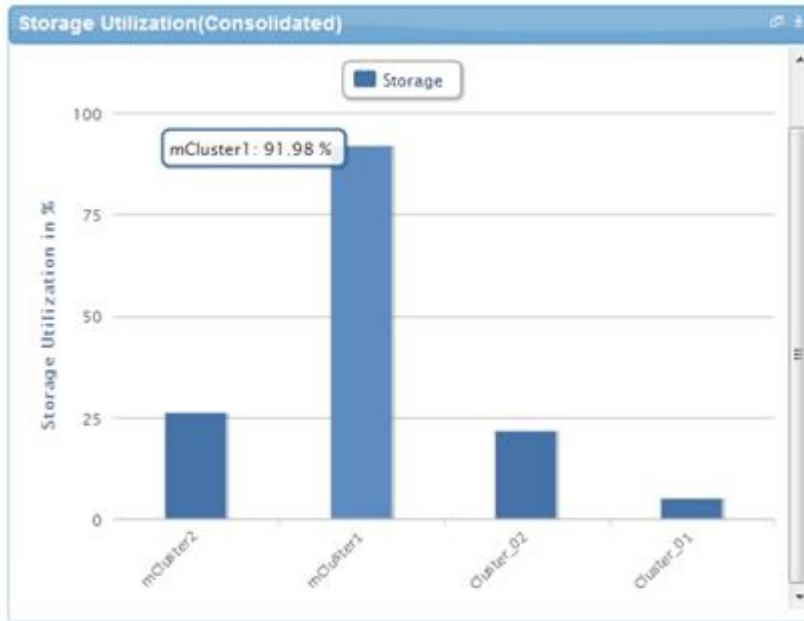
# CPU and Memory Utilization Over Time Graph for Hosts

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

**CPU and Memory Utilization Showback Report**
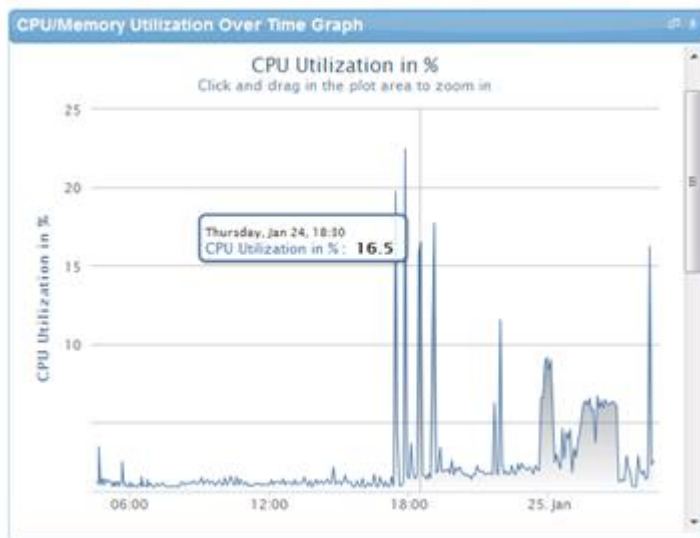


You can view the data for a specific time interval (with a minimum time interval limit of 10 minutes between two data points). To view the specific time interval data, select a point and drag the pointer to a desired data point. You can reset the time interval to default by clicking **Reset Zoom**.

# CPU and Memory Utilization Over Time Graph for Clusters

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

**CPU Utilization Over Time Graph for Cluster**
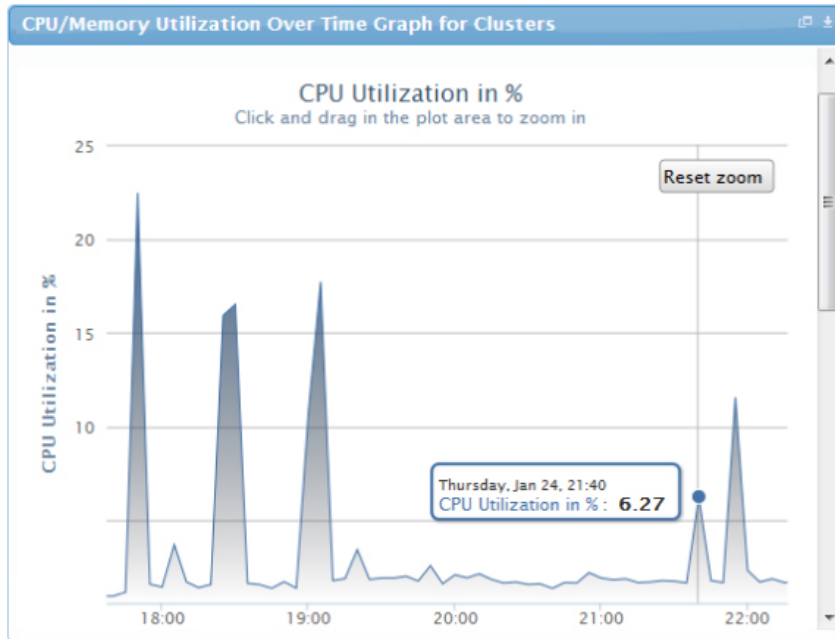


**Memory Utilization Over Time Graph for Cluster**
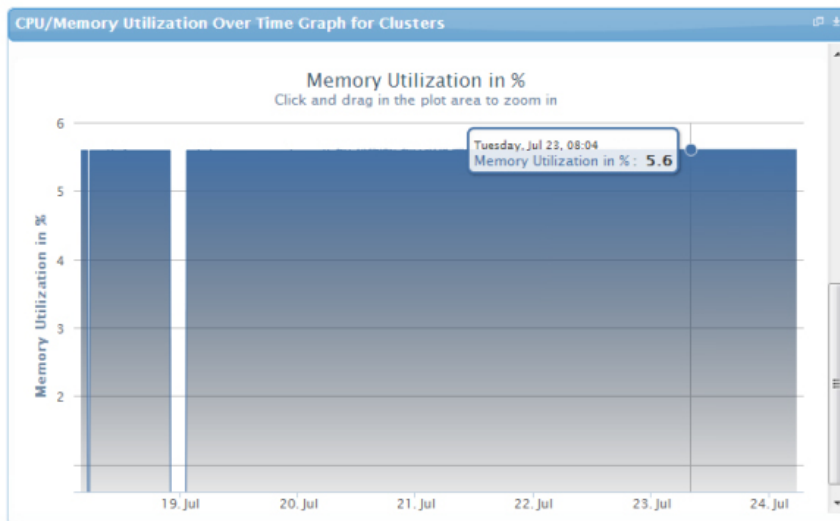


You can view the data for a specific time interval (with a minimum time interval limit of 10 minutes between two data points). You can also set the refresh interval based on which the report will be refreshed automatically. To view the specific time interval data, select a point and drag the pointer to a desired data point. You can reset the time interval to default by clicking **Reset Zoom**.

# Appendix A — Deployment Activities

## Verifying Active System Manager Services

To verify that all Active System Manager services are up and running, perform the following steps:

1. Log in as the user who installed the services.
2. Run the following script to display the current status of all services, including the Oracle database status:

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

```
./asmstatus.sh
```

Sample output:

```
                    Active System Manager Services Status

Installation
----------------
Release Version: 7.1
Build Number: 21286
Database
----------------
Vendor: Oracle (Ver: 11.2.0.1.0)
Host: asm-galeforce Port: 1521
Service name: DB11G
Status: Running
Active System Manager Service
---------------------------------
Host: asm-galeforce Port: 40500 Secure Port: 50500
Enterprise: Dell
Lab: DEMO
Status: Running
Domain Services
----------------
1. Domain     : System (Id: 1)
   Description:
   ------------------------------------------------------
   Session server
      Host: asm-galeforce  Port: 40500  Secure Port: 50500
      Status: Running
```

# Appendix B — Firmware and Software Base Lineup

The following table list the firmware and software base lineups, grouped based on Hypervisor blades.

**Firmware and Software Base Lineup — Hypervisor Blades**

| Resource | Active System Manager 7.1 |
|---|---|
| BIOS | 1.7.5 |
| CPLD | 1.0.5 |
| iDRAC7 Enterprise | 1.40.40 |
| LCC (Lifecycle Controller) 2 | 1.5 |
| Network Controller Broadcom FW | 7.6 |
| EqualLogic MEM | 1.1.1 |
| Microsoft Windows Server | 2012 |

The following table lists the firmware and software base lineups, based on chassis, storage, and switches.

**Firmware and Software Base Lineup — Chassis, Storage, Switches**

| Resource | Active System Manager 7.1 |
|---|---|
| CMC | 4.40 |
| PowerEdge M I/O Aggregator 8.3.17.2 | 8.3.17.4 |
| MXL | 8.3.16.4 |
| Dell Force10 S4810 (LAN) | 9.1 |
| EqualLogic PS Arrays | 6.0.4 |

The following table lists the firmware and software base lineups, grouped based on management VMs and software.

**Firmware and Software Base Lineup**

| Resource | Active System Manager 7.1 |
|---|---|
| CMC | NA |
| PowerEdge M I/O Aggregator 8.3.17.2 | NA |
| Dell Force10 S4810 (LAN) | 9.1 |
| EqualLogic PS Arrays | 6.0.4 |

The following table lists the firmware and software base lineups, grouped by management VMs and software.

**Firmware and Software Base Lineup — Management VMs and Software**

| Resource | Active System Manager 7.1 |
| --- | --- |
| Windows Server | 2012 |
| VMware vCenter Server | N/A |
| Dell EqualLogic Virtual Storage Manager (VSM) | 3.5 EPA |
| Dell OpenManage Plug-in for vCenter | N/A |
| Dell SAN HQ | 2.5 EPA |
| VMware vCloud Connector | N/A |
| Dell OpenManage Essentials | 1.1 |
| Dell OpenManage Repository Manager | 1.4.113 |

# Appendix C — Planning Worksheet

**Out of Band Management IP Address Configuration**

| Equipment | IP Address | Subnet Mask | Gateway | Username | Password |
|---|---|---|---|---|---|
| Chassis 1 CMC | | | | | |
| Chassis 2 CMC | | | | | |
| Dell Force10 S4810 Switch1 | | | | | |
| Dell Force10 S4810 Switch2 | | | | | |
| EqualLogic Storage Array Management | | | | | |
| Active System Manager Appliance | | | | | |
| SCVMM | | | | | |

## Hyper-V Host Information for Hyper-V Imaging

The following parameters for each server are required:

- **WindowsComputerName**— Host name to be assigned to the Hyper-V Host.

  ✎ NOTE: The **WindowsComputerName** parameter value should not contain more than 15 characters in the inventory.
- **WindowsDomainAdminUser** — Windows Domain Admin User name used for adding the host to Domain Controller.
- **WindowsDomainPassword** — Windows Domain Admin User Password used for adding the host to Domain Controller.
- **WindowsDomainFullyQualifiedName**— Windows Domain FQDN name used for adding the host to Domain Controller. For example, abcdomain.com
- **WindowsDomainName** — Windows Domain name used for adding the host to Domain Controller. For example, abcdomain
- **WindowsPassword**— Local Admin Password to be configured on the Hyper-V host.
- **WindowsProductKey**— Windows Product Key to be used for the installation.
- **WindowsUserName**— Windows local Domain Admin. "Administrator" needs to be used in the inventory parameter.

## VLAN Configuration

| Traffic Type | VLAN |
|---|---|
| HypervisorManagement | |
| SANiSCSI | |

| Traffic Type | VLAN |
|---|---|
| Workload | |
| HyperVClusterPrivate | |
| vMotionLiveMigration | |

Hyper-V Workloads:

- Administrator needs to create a volume on EqualLogic Storage Array manually.
- This volume needs to contain the base line VMs that will be used for creating the VM workloads.

# Appendix D — Install and Configure OpenSSH

The Windows x64 OpenSSH 6.2p1 version to be installed on SCVMM server.

## Installing OpenSSH

To install OpenSSH:

1. Download the **Windows x64 setupssh-6.2p1 (x64) – v1.exe** version, available at **http://www.mis-software.com\opensshd.html**.
2. Run the **setup.exe** file.
3. In the **Install under Local System or SSHD_Server Account** window, click **Run As SSHD_SERVER (Required for W2k3)** ,and then click **Next**.
4. In **Setup Privilege Separation** window, click **Yes (Required for W2K3)**, and then click **Next**.
5. In **Create Password and Group files**, click **Domain Users**, and then click **Next**.

## Configuring OpenSSH on SCVMM Server

To configure OpenSSH on SCVMM Server, perform the following steps:

1. Open the **/etc/sshd_config** file inside OpenSSH installation directory path using notepad.
2. Add the following content at the end:
   ```
   Subsystem sftp internal-sftp
   ```

   **NOTE:** Comment existing 'Subsystem' line before adding the new lines.
3. Restart opensshd services using following commands:

   **Net stop opensshd**

   **Net start opensshd**

   **NOTE:** OpenSSH must be installed on SCVMM server as Domain Admin user.

   **NOTE:** Access credentials for SCVMM login using SSH are case sensitive. For example, if user name is Administrator, do not use 'administrator' to login in to SCVMM.

# Appendix E — FAQs

1. SSI properties are overwritten while upgrading the Resource Adapters (RA).

   Upgrading the RA will override the **ssi.properties** file. Before upgrading the RA, back up the RA directory.

   To back up the RA directory:

   – Log in to the Active System Manager server as delladmin user.
   – `cd` **$HOME/asm-galeforce/gf/common/integrations**
   – `cp -r` <manufacturer>/<model> <manufacturer>/<model>_<CurrentDate>

2. How Gold Volumes on EqualLogic Storage Array are secured?

   Gold Volumes are secured using subnet based access.

3. What about the images and firmware versions released after the Active System Manager 7.1 release?

   Active System Manager 7.1 is validated with firmware and images as specified in <u>Appendix B — Firmware and Software Base Lineup</u> section. The Images and firmware versions that are released after Active System Manager 7.1 should work but these images and firmware versions should be validated with the solution.

4. What is base level configuration and what is consists of for Dell Force10 switches?

   Base level configuration is the minimal set of configuration running on the switches to bring them to an operational state. For more details on base level configuration, refer the embedded sample configuration file.

5. Is it required to create pools on Dell EqualLogic Storage Array?

   Creating pool on EqualLogic storage 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.

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

   Yes, HTTPS is supported on Active System Manager.

7. What is the difference between synchronize and discovery?

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

   – Inventory information
   – Operation center view
   – Link information

8. Is terminal server connectivity required for Dell Force10 switches?

   Terminal server connectivity to Dell Force10 switches is optional.

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

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

10. How to identify the optional parameters in an orchestration step method?

    The parameters with the "*" sign suffixed next to them are mandatory and the parameters without * sign are optional. For example, see the following figure.

| Name | Value | Description |
|---|---|---|
| ☐ 🗁 HyperV Imaging | | |
|    WindowsServerSystemLanguage | en-us | System Launguage to be configured on the Hy... |
|    WindowsServerTimeZone | India Standard Time | System Timezone to be configured on HyperV ... |
|    WindowsOperatingSystem | Microsoft Windows Server 2012 | |
|    SCVMMServerIP | | SCVMM Server IP Address |
|    HyperVHostGroupName | All Hosts | SCVMM Host-Group in which hosts will be added |
|    HyperVInstallationImage | san://Windows Image Repository/WS2012... | Windows ISO Image available in the repository... |
|    ServerProfileTemplate | AS800_Hyper-V_template | Server Profile Template |
|    HyperVClusterName | | |
| ☐ 🗁 Network | | |
|    HyperVClusterIPAddress | | SCVMM Cluster IP Address |
|    VMNetworkName | ConvergedNetSwitch | |
|    LogicalNetworkName | ConvergedNetSwitch | |
| ☐ 🗁 Storage | | |
|    ClusterVolumeSize | 500g | |
|    iSCSIVolumeSubnet | *.*.*.* | |
|    QuorumVolumeSize | 1g | Quorum Volume Size |
|    QuorumVolumeName | | Quorum Volume Name |
|    HyperVISCSIStoragePrefix | | HyperV ISCSI StoragePrefix. Volume names m... |
|    StoragePoolName | | Storage Pool name in EqualLogic Storage Array |

11. When to add new images and firmware versions in the appliance?

Before they can be used for provisioning various resources in the environment, perform the following steps:

a. Discover the new versions using respective software repositories

b. Associate the versions with the proper resource types and instances

For details, see the Updating Repository Elements for Windows Image Repository section.

12. How to change the host name of the Active System Manager server?

To change the host name of the Active System Manager server:

a. Log in to the Active System Manager appliance as a root user.

b. Open the **/etc/sysconfig/network** file and specify the new host name in the **HOSTNAME** field.

c. Specify the host name in the **/etc/hosts** file.

d. Run the `reboot` command to restart the server.

e. Log in to the server as a delladmin user after restarting the server.

f. Run the `hostname` command to verify if the new host name is configured as host name.

g. Stop the Active System Manager services.

h. Change the directory using **cd $HOME/asm-galeforce/gf/sbin**

i. Run **./updateHostName.sh** and follow the instructions to configure the host name in the Active System Manager installation.

j. Delete the following files from the directory: **/home/delladmin/**

* **.ssh/id_rsa**
* **.ssh/id_rsa.pub**

    k. Create a password less connection using the command `ssh-keygen`.

    l. Start the Active System Manager Services. For details on starting and stopping the Active System Manager services, see the [Configuring Active System Manager Services](#) section.

13. Can I add new server in session to add capacity to a cluster created using ASM session?

    This is not supported. Cluster once created cannot be updated to add more capacity. To add more capacity to a cluster, user should cancel the reservation and recreate a session with increased capacity (increased server count).

14. How to remove a server from a session to free up the unused servers or remove servers that are down?

    Server can be removed from the session, but no cleanup operations are currently performed while removing a specific server from the session. User needs to cancel the session for removing servers from a session.

15. Can I manage multiple Active System with the same type (for example, 2X AS800) or different type (for example, AS800 and AS200), using a single ASM appliance?

    Yes. A single ASM appliance can be used to manage multiple ASM appliance of the same type or different type.

16. ASM Template validation fails and the template cannot be scheduled if Active System elements are discovered separately.

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

17. Interface mapping (DIS links) between the end devices is not correct as they do not represent the actual location of the end devices.

    Links discovered during discovery do not represent the actual connection between the end devices, these links are dummy connections. The DIS links are discovered to represent the connections or links in the ASM template. This allows scheduling of the ASM templates with links in ASM template.

18. Can I change the default SFTP installation path for Hyper-V RA?

    User 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**. User can update this property from the client if installation path is different from default SFTP installation path. For example, **SSIOBJ:scriptPath "C:\\Program Files\\OpenSSH\\home"**

19. What are the best practices for providing Asset Tag during discovery of an Active System?

    User need to ensure that the Asset Tag provided in discovery setup does not match with the Manufacture or Model name pattern. For example, if Manufacture is EqualLogic and Model is StorageArray, the assetTag used during discovery should not have a pattern which matches either of "EqualLogic" or "StorageArray".

    📝 **NOTE:** In case user provides a name with pattern that matches Manufacture or Model than Virtual Object imported in ASM does not have the "Hypevisor" flag checked in inventory. User will have to manually enable the Hypervisor flag in this case. For enabling the Hypervisor flag on a resource instance in inventory, refer the ASM User Guide.

20. How the Workload VLAN's which is defined in the VLAN component in ASM Template and Server Profile is configured by ASM?

    ASM configures only Workload VLANs which are defined in ASM Template for Top of Rack switches configuration. However IOA is configured with VLAN's which are defined in VLAN component as well as Workload VLAN's defined in Server profile template. Thus for ensuring IOA and ToR switches are configured with same set of workload VLAN's, make sure that workload VLAN's defined in Server profile template should be a subset of VLANs defined on the VLAN component in ASM template.

21. What are the supported GuestOS for Hyper-V VM creation in ASM 7.1?

    ASM 7.1 supports only Windows 2012 GuestOS for VM creation based on Hyper-V.

22. If Hyper-V and Active System nodes are not selected in the discovery configuration, the discovery initiated from the orchestration does not discover the Hyper-V or Active System elements

This is as per the design. To discover the Hyper-V or Active System elements, select the Active System elements and applicable Hyper-V entries in the discovery setup.

23. Can I add new VLANs to a running physical session?

Yes, you can add new VLANs to a running session.

To add VLANs to a running session, perform the following steps:

a. From the **Components** view, drag the new VLAN component to a RUNNING session. To save the changes done to the RUNNING session, click **Save** on the toolbar.

b. In the **Networking Configuration** editor, add the new VLAN ID that you added in the RUNNING session manually to the list of Networks.

To open the **Networking Configuration** editor, use one of the following methods:

* On the menu bar, click **Tools → Discovery → Networking**
* In the **Setup** perspective, click **Networking** on the toolbar.

c. Update the Server Profile Template to incorporate the new VLAN ID.

To update the Server Profile Template, perform the following steps:

1. In the **Operation Center** view, right-click a Server Profile Template in the **Server Template And Profiles** tab, and click **Edit**.
2. In the **Edit Server Profile Template** dialog box, navigate to **Network Settings** page by clicking **Next**.
3. In the **Network Setting** window, select the Virtual NIC and click **Edit**.
4. In the **Edit vNIC Configuration** dialog box, update the new VLAN ID.

d. Run the custom operation **AttachServerProfile** using the following parameters:

* Parameter **IOMsOnly** should be set to "true".
* Parameter **ProfileIdList** should have the list of profile IDs in a comma-separated format.

e. Run the Dell Server custom operation "VMware - Update ESXi Server Port Group VLAN Info" to configure the required port-groups on the vSwitch corresponding to new VLAN component in session.

24. While creating a server profile template, can I select firmware images for server components from different repositories?

No. The 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.

25. Resource Adapter does not support VM cloning across datacenters.

Cloning of VMs across data centers is not supported in ASM 7.1 . The VM template or gold VMs should be in the inventory of the datacenter where you are deploying VMs to hosts.

26. 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.

27. 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 the requirement and if you face bottleneck because of it. ASM 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:

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 or equal to 50.

* **Set poolsize** — Attribute in the threadpool node.

* **Set executioncount**— Attribute in the maxparallel node.

d. Run the reboot command to restart the server.

28. 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.