

Scalability with Dell EMC OpenManage Integration with Microsoft System Center (OMIMSSC) for System Center Operations Manager (SCOM)

Abstract

The Dell EMC OpenManage Integration with Microsoft System Center (OMIMSSC) appliance for System Center Operations Manager (SCOM) provides an option to configure Dell EMC Alert Relay Servers (previously known as Proxy Management Servers). When you want to scale up your infrastructure by including more devices, you can seamlessly scale up your monitoring capabilities by adding Alert Relay Servers into your OMIMSSC environment.

July 2021

Revision history

Table 1 Document revision history

Date	Revision	Description
January 2021	A00	Initial release for OMIMSSC version 7.2
July 2021	A01	OMIMSSC version 7.3 for SCOM release: Enhanced enrollment workflow to set up and configure Dell EMC Alert Relay Servers.

Acknowledgments

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Summary

The Dell EMC OpenManage Integration with Microsoft Windows System Center (OMIMSSC) appliance for System Center Operations Manager (SCOM) provides an option to configure Alert Relay Servers (previously known as Proxy Management Servers). When you want to scale up your infrastructure by including more devices, you can seamlessly scale up your monitoring capabilities by adding Alert Relay Servers in to your OMIMSSC environment.

Dell EMC Alert Relay Servers enables you to offload the monitoring, performance metrics, and SNMP alerts' workflows from the Management Server, and thus helps in scaling up the number of devices being monitored within a SCOM Management Group. Ensure that SCOM Management Servers and Dell EMC Alert Relay Servers are in the same domain. Discover Alert Relay Server as an Agent-Managed Windows system in the SCOM console.

1 Overview of Dell EMC Alert Relay Servers (previously known as Proxy Management Servers)

Dell EMC Alert Relay Servers are virtual machines running on Windows Server Operating System which is introduced from Dell EMC OpenManage Integration for Microsoft System Center—Operations Manager version 7.1 and later, to offload the monitoring, performance metrics, and SNMP Alerts work flows from the Management Server and thus helping in scaling the number of devices being monitored within a Management Group. SCOM Management Servers and Alert Relay Servers must be in the same domain. Discover the Alert Relay Server as an Agent-Managed Windows system in the Operations Manager console.

Installing and configuring Dell EMC Alert Relay Servers is mandatory if you are using the Dell EMC OpenManage Integration with Microsoft System Center (OMIMSSC) for System Center Operations Manager (SCOM) appliance to discover and monitor Dell EMC devices on the SCOM console. If you are using only Dell EMC Windows Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack for SCOM (previously known as Dell EMC Server Management Pack Suite), then installing Dell EMC Alert Relay Servers is not mandatory.

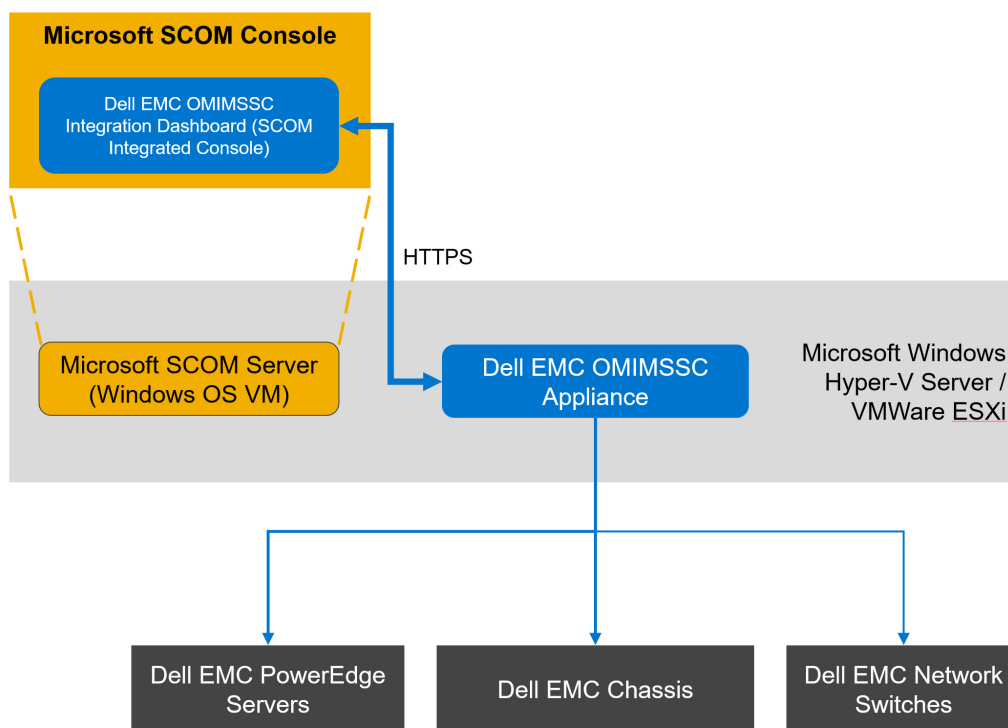


Figure 1 Architecture diagram of the OMIMSSC appliance

1.1 Purpose of Dell EMC Alert Relay Servers

Using Dell EMC Windows Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack (previously known as Dell EMC Server Management Pack Suite), you could monitor up to 600 devices in the Scalable mode in a SCOM Management Group with five Management Servers. From OMIMSSC appliance version 7.1 and later,

with the introduction of Alert Relay Servers, you can achieve higher scalability of monitored devices—nodes in multiples of thousands.

NOTE: The Alert Relay Server feature is supported only on Microsoft SCOM 2012 R2 and later versions.

1.2 Best practices in configuring Alert Relay Servers

- You must configure Dell EMC Alert Relay Servers in your SCOM Management Group to monitor Dell EMC devices using the OMIMSSC appliance.
- Based on the number of devices that you want to monitor on the SCOM console, you configure Alert Relay Servers accordingly. Each Alert Relay Server can monitor a maximum of 250 devices in the Scalable mode or 30 devices in the Detailed mode.
- In the Scalable mode, maximum number of Alert Relay Servers that can be hosted on a single Management Server is four and each Alert Relay Server can monitor 250 devices.
- In the Detailed mode, maximum number of Alert Relay Servers that can be hosted on a single Management Server is two and each Alert Relay Server can monitor 30 devices.
- Symmetrically distribute the Alert Relay Servers across all the Management Servers in the resource pool.
- Ensure not to overload Management Servers by adding a greater number of Alert Relay Servers.

NOTE: In the Scalable mode of OMIMSSC, inventory and health monitoring details are displayed up to the device and component group level. However, in the Detailed mode of OMIMSSC, inventory, and health monitoring details are displayed for individual components such as memory, processors, Compute Usage Per Second (CUPS), BIOS, and sensors in addition to the group level details.

1.3 Alert Relay Servers system requirements

The following are the minimum software and hardware requirements of a Windows VM on the managed node to host Alert Relay Servers.

- Supported operating system on the managed node for:
- SCOM 2019, see the *Server operating system* section at <https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2019>
- SCOM 2016, see the *Server operating system* section at <https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2016>
- SCOM 2012 R2, see the *Server operating system* section at <https://docs.microsoft.com/en-us/previous-versions/system-center/system-center-2012-R2>
- CPU Cores—8
- RAM—32 GB

2 Setting up Dell EMC Alert Relay Servers

2.1 Prerequisite

Apply the following Microsoft public hotfix on Alert Relay Servers: <https://support.microsoft.com/en-us/help/4481376/>

2.2 Discover Alert Relay Servers on the SCOM console

1. In the left pane of the SCOM console, select **Administration** and click **Discovery Wizard**.
2. Select **Windows computers** and click **Next**.
3. Select **Advanced discovery** and from the **Management Server** drop-down menu, select a Management Server in the Management Group, and then click **Next**.
4. Select **Browse for, or type-in computer names** and click **Browse**.
Provide the Alert Relay Server details to be discovered on the SCOM console.
5. Click **Discover**.

After the Dell EMC Alert Relay Server is discovered, it is listed on the SCOM console under **Administration** → **Device Management** → **Agent Managed**.

2.3 Download and install Dell EMC Alert Relay Server Installer from the OMIMSSC Admin Portal

NOTE: The installer restarts the Microsoft Monitoring Agent Health Services.

1. On a web browser, provide the OMIMSSC appliance IP address and log in as an OMIMSSC ADMIN. You must use the OMIMSSC ADMIN user credentials set during the configuration of OMIMSSC appliance for SCOM. See the *Configure the OMIMSSC appliance* section in the *Dell EMC OpenManage Integration with Microsoft System Center for System Center Operations Manager User's Guide* on the Dell Technologies support site.
2. On the OMIMSSC Admin Portal, to expand the left pane, click the > icon, and then select **Downloads**.
3. Click **Dell EMC Alert Relay Server Installer**.
Save the installer on each of the Alert Relay Server in the SCOM Management Group.
4. Double-click the **DellEMCAAlertRelayServerInstaller.msi** file and click **Next**.
5. Read the license agreement and to accept the license terms, select **I accept the terms in the license agreement**, and then click **Next**.
6. Click **Install**.

At the end of the installation, the following event is added to Windows event log:

Event ID 72 is generated in the Windows Event Viewer under **Windows Logs** → **Application**. The Alert Relay Server-related configurations are listed under the **General** tab.

The Dell EMC Alert Relay Server Installer configures the following changes to the Windows VM:

- Registry entries are created under HKEY_LOCAL_MACHINE → SOFTWARE → Dell → DSMPS.
- Health services-related registry entries are updated under HKEY_LOCAL_MACHINE → SYSTEM → CurrentControlSet → Services → HealthService → Parameters.

- Persistence Version Store Maximum Registry Path is set to 131072.
- Maximum Global Pending Data Count Registry is set to 20408.
- State Queue Items Registry is set to 20480.
- Persistence checkpoint Depth Maximum Registry is set to 20971520.

During the enrollment of SCOM Management Servers with OMIMSSC appliance for SCOM, the following Dell EMC management packs for the Alert Relay Servers will be automatically imported to the SCOM console: Dell EMC Alert Relay Server Model and Dell EMC Alert Relay Server View.

Logs are created under

C:\Users\\AppData\Local\Temp\DellEMC.OMIMSSC.Configuration

NOTE: For more information about registry key settings, see <https://docs.microsoft.com/en-us/archive/blogs/>. These are minimum required values for monitoring fully scaled environment.

3 Monitoring Dell EMC devices

3.1 Monitoring views of Dell EMC Alert Relay Servers

1. In the left pane of the SCOM console, select **Monitoring**, and then expand:
 - a. **Dell EMC → Dell EMC Diagram Views → Dell EMC Alert Relay Server Diagram View** to view a hierarchical and graphical representation of Alert Relay Servers on the network.

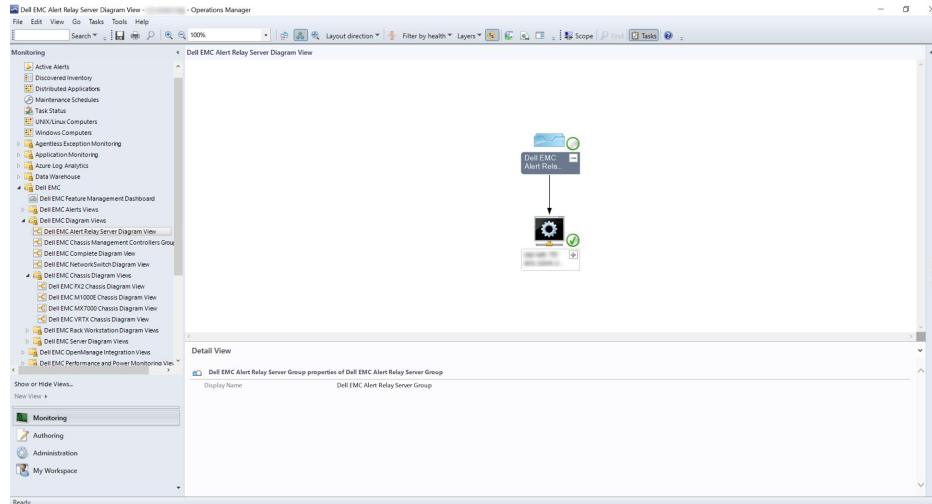


Figure 2 Dell EMC Alert Relay Server Diagram View

- b. **Dell EMC → Dell EMC State Views → Dell EMC Alert Relay Server State View** to view the status of Alert Relay Servers that are managed by SCOM on the network.

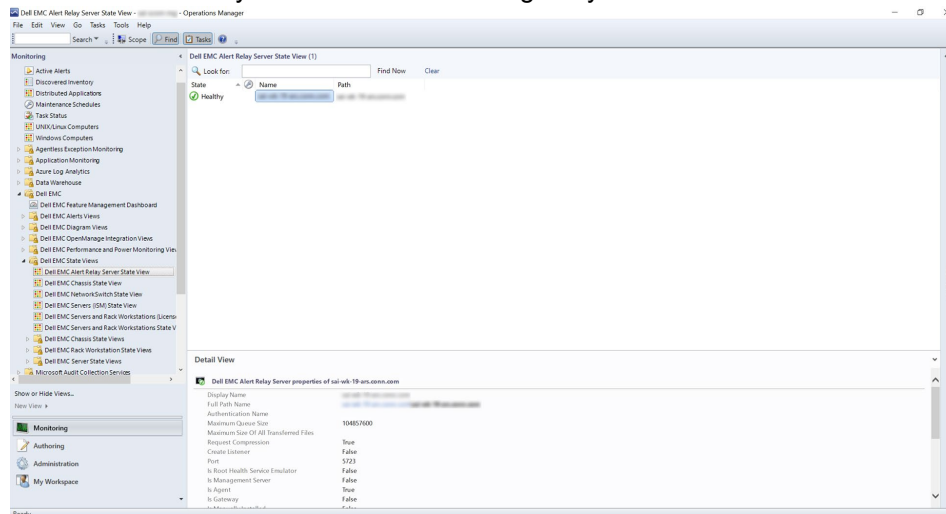


Figure 3 Dell EMC Alert Relay Server State View

2. To view more information, select an Alert Relay Server in the list. The details of Alert Relay Servers are displayed in the **Detail View** section.

3.2 Synchronize Alert Relay Servers with OMIMSSC appliance for SCOM

1. In the left pane of the SCOM console, select **Monitoring** and expand **Dell EMC OpenManage Integration Views** → **Dell EMC OpenManage Integration Dashboard**.
2. Log in to OMIMSSC by using the local administrative privileges of the Management Server.
3. On the home page, scroll down to the **Synchronized SCOM Management Servers and Dell EMC Alert Relay Servers** section and click **Sync with SCOM MS**.
4. After the sync task is complete, the Alert Relay Servers count is updated. Click **View Alert Relay Servers** to view the discovered Alert Relay Servers.

NOTE: Wait for 15 minutes for the OMIMSSC appliance to be updated with new Alert Relay Server information, and then continue to perform discovery of Dell EMC devices.

4 Deployment scenarios

The Dell EMC devices can be discovered and monitored on the SCOM console using the Dell EMC OMIMSSC appliance. One instance of OMIMSSC provides support to one Management Group for the discovery and monitoring of devices. You can configure SCOM Management Servers and Dell EMC Alert Relay Servers as per the deployment scenarios required for your environment.

4.1 Required configurations for SCOM Management Servers and Dell EMC Alert Relay Servers

There are two different scenarios in which Dell devices can be discovered and monitored in SCOM.

- **Devices discovered using Dell EMC OpenManage Integration Dashboard (iDRAC, Chassis, Network Switch):** Dell EMC devices are discovered as iDRAC, Dell EMC Chassis, or Dell EMC Network through the OpenManage Integration Dashboard. OMIMSSC Appliance supports 5000 devices in Scalable Mode and 300 devices in Detailed Mode using this method.
- **Devices discovered using SCOM (SMASH / Network Devices):** Dell EMC iDRAC devices are discovered as SMASH devices using WS-Man SMASH Monitoring Template while Dell EMC Chassis and Dell EMC Network Switches are discovered using the SCOM Networking Discovery Wizard. To bring these Dell EMC devices into the OMIMSSC appliance for SCOM, use the **Sync with MSSC** option from the respective device view. OMIMSSC Appliance supports 600 devices in Scalable Mode and 120 devices in Detailed Mode using this method.

The SCOM resource requirements (Management Servers, Resource Pool configurations) vary in the above two scenarios. It is recommended to use the same method for discovering all devices to get the best scalability for monitoring Dell EMC devices.

Table 2 Dell EMC devices discovered from OMIMSSC Appliance (SCOM 2012 R2 to latest SCOM)

Monitoring mode	Maximum count of Dell EMC Devices per Alert Relay Server specific to the Monitoring mode	Number of Alert Relay Servers to be configured	Number of Management Servers to be configured	Remarks
Scalable	250	=(Total number of Dell EMC devices) / 250	Maximum of the two numbers: <ul style="list-style-type: none"> • Number of Alert Relay Servers / 4. • Number of Management Servers recommended by Sizing Guide with number of network devices set to 0. 	<ul style="list-style-type: none"> • Each SCOM Management Group can have maximum of five Management Servers and 20 Alert Relay Servers configured. • Each Management Server can be connected to maximum of four Alert Relay Servers. • Each Alert Relay Server can monitor maximum of 250 devices in Scalable mode.
Detailed	30	=(Total number of Dell EMC devices) / 30	Maximum of the two numbers: <ul style="list-style-type: none"> • Number of Alert Relay Servers / 2 • Number of Management Servers recommended by Sizing Guide with number of network devices set to 0. 	<ul style="list-style-type: none"> • Each SCOM Management Group can have maximum of five Management Servers and 10 Alert Relay Servers. • Each Management Server can be connected to maximum of two Alert Relay Servers. • Each Alert Relay Server can monitor maximum of 30 devices in Detailed mode.

Table 3 Dell EMC devices discovered from SCOM console; iDRAC – SMASH Monitoring Template, Chassis, and Network Switches as Network Devices (SCOM 2012 R2 to latest SCOM)

Monitoring mode	Maximum count of Dell EMC Devices per Alert Relay Server specific to the Monitoring mode	Number of Alert Relay Servers to be configured	Number of Management Servers to be configured	Remarks
Scalable	250	=(Total number of Dell EMC devices) / 250	Total of the two numbers: <ul style="list-style-type: none"> • Number of Alert Relay Servers / 4. • Number of Management Servers present in Sizing Guide with Number of all Network Devices set to (Total number of SMASH) + (Network Devices); irrespective of whether devices are Dell EMC devices or not.) 	<ul style="list-style-type: none"> • Each SCOM Management Group can have maximum of five Management Servers and 20 Alert Relay Servers configured. • Each Management Server can be connected to maximum of four Alert Relay Servers. • Each Alert Relay Server can monitor maximum of 250 devices in Scalable mode. <p>Maximum number of Management Servers:</p> <ul style="list-style-type: none"> • = 5 for Windows + Alert Relay Server • = 6 for network devices <p>The network devices must be created in their own resource pool.</p>
Detailed	30	=(Total number of Dell EMC devices) / 30	Total of the two numbers: <ul style="list-style-type: none"> • Number of Alert Relay Servers / 2 • Number of Management Servers present in Sizing Guide with Number of all Network Devices set to (Total number of SMASH) + (Network Devices); irrespective of whether devices are Dell EMC devices or not.) 	<ul style="list-style-type: none"> • Each Alert Relay Server can monitor maximum of 30 devices. • Each Management Server can be connected to maximum of 2 Alert Relay Servers. • Each Management Group can have up to max 10 Alert Relay Servers. <p>The network devices must be created in their own resource pool.</p>

4.2 Examples of deployment scenarios

The [Microsoft SCOM sizing guide](#) provides details on the required number of SCOM Management Servers for the number of devices discovered using the OMIMSSC appliance (with the number of network devices set to zero) and using the SCOM console.

- Dell EMC Devices discovered from OMIMSSC appliance:
 - As per the Sizing helper guide:
 - In Scalable monitoring mode: Every 3000 Dell EMC devices require one MS.
 - In Detailed monitoring mode: Every 300 Dell EMC devices require one MS.
- Dell EMC devices discovered from SCOM console:
 - As per the Sizing helper guide:
 - In Scalable monitoring mode: Every 300 Network Devices (iDRACs, Switches) require three MS.
 - In Detailed monitoring mode: Every 60 Network Devices (iDRACs, Switches) require three MS.

Table 4 Examples of deployment scenarios

Discovery	Monitoring Level	Dell EMC devices in SCOM Management Group	Number of Alert Relay Servers	Number of Management Servers
Discovery from Appliance	Scalable	1–3000	12 (= 3000/250)	3 (=max(12/4, 1))
	Scalable	3001–5000 (<u>max</u>)	20 (= 5000/250)	5 (=max(20/4, 2))
	Scalable	900	4 (= 900/250)	1 (= max(4/4, 1))
	Scalable	1200	5 (= 1200/250)	2 (= max(5/4, 1))
	Scalable	3200	13 (= 3200/250)	4 (= max(13/4, 2))
	Detailed	<u>300 (max)</u>	10 (=300/30)	5 (=max(10/2, 1))
Discovery from SCOM	Scalable	1–300	2 (=300/250)	4 (=2/4 + 3)
	Scalable	301– <u>600 (max)</u>	3 (=600/250)	7 (=3/4 + 6)
	Scalable	250	1 (=250/250)	4 (=1/4 + 3)
	Detailed	<u>120 (max)</u>	4 (=120/30)	8 (=4/2 + 6)

A Technical support and resources

[Dell.com/support](https://dell.com/support) is focused on meeting customer needs with proven services and support.

[Dell.com/esmmanuals](https://dell.com/esmmanuals): For Dell EMC Enterprise Systems Management, Dell EMC Remote Enterprise Systems Management, and Dell EMC Virtualization Solutions documentation.

A.1 Related resources

Table 5 Dell EMC OMIMSSC appliance for SCOM-related documents

Document	Description	Availability
Dell EMC OpenManage Integration with Microsoft System Center (OMIMSSC) for System Center Operations Manager (SCOM) User's Guide	Provides information about deploying, configuring, using, and troubleshooting the OMIMSSC appliance.	<ol style="list-style-type: none"> Go to Dell.com/esmmanuals. Select OpenManage Integration for Microsoft System Center Operations Manager (SCOM), and then select the required application version. Select the DOCUMENTATION tab to access these documents.
Dell EMC OpenManage Integration with Microsoft System Center (OMIMSSC) for System Center Operations Manager (SCOM) Release Notes	Provides information about new features, known issues, and workarounds in the OMIMSSC appliance.	
Dell EMC Windows Server Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack for System Center Operations Manager User's Guide	Provides information about installing, configuring, using, and troubleshooting Dell EMC Windows Server Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack for System Center Operations Manager.	
Dell EMC Windows Server Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack for System Center Operations Manager Release Notes	Provides information about new features, known issues, and workaround in Dell EMC Windows Server Agent-based and iDRAC7 or iDRAC8 SNMP Management Pack for System Center Operations Manager.	