

Dell Compellent Storage Center Management Pack 3.0 for Microsoft SCOM 2012/R2 Best Practices

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Revisions

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Executive summary

This document provides best practice recommendations and many step-by-step procedures for the following:

- Install and configure the Dell Compellent Storage Center Management Pack 3.0 for Microsoft System Center Operations Manager (SCOM) 2012/R2.
- Uninstall previous versions of the Dell Compellent Management Pack from Windows Server 2012/R2 and SCOM 2012/R2.
- View and close active Storage Center alerts in SCOM 2012/R2.
- Use SCOM 2012/R2 dashboards to view Storage Center data.
- Create Overrides in SCOM for Storage Center monitors, object discoveries, and rules.
- Configure Dell Compellent Enterprise Manager to utilize more system memory in large environments.
- Investigate and troubleshoot problems with the Dell Compellent WMI Provider, Management Pack 3.0, and SCOM 2012/R2.

1 Preface

This document is highly technical and is intended for storage and systems administrators who monitor Dell Compellent Storage Center devices from the Microsoft Systems Center Operations 2012 R2 (SCOM) Management Console. Readers should have a good working knowledge of Microsoft SCOM 2012/R2 and the Dell Compellent Storage Center.

1.1 Documentation for previous release of the management pack

Dell Compellent best practices for the previous version of Storage Center Management Pack are referenced in Table 1.

Previous Version	Notes	Documents and locations
Management Pack 2.0	Supported on SCOM 2007 and 2012	SCOM 2012 with Dell Compellent Storage Center Management Pack 2.0 http://en.community.dell.com/techcenter/extras/m/white_papers/2043 7997.aspx

 Table 1
 Documentation for previous version of Dell Compellent Management Pack

1.2 Customer support

Dell Compellent provides live support at 1-866-EZSTORE (866.397.8673), 24 hours a day, 7 days a week, 365 days a year. For additional support, email Dell Compellent at support@compellent.com. Dell Compellent responds to emails during normal business hours.



2 Introduction

A brief overview of the major components that comprise the environment is provided in this section.

2.1 Dell Compellent Storage Center overview

The Dell Compellent Storage Center is an enterprise-class storage area network (SAN) that lowers capital expenditures, reduces storage management and administration time, provides continuous data availability and enables storage virtualization. Storage Center's Fluid Data Architecture manages data dynamically at the block-level, maximizing utilization, automating tiered storage, simplifying replication and speeding data recovery.

2.2 Microsoft System Center Operations Manager 2012 R2

Microsoft System Center Operations Manager (SCOM) 2012 is a tool that can provide comprehensive monitoring for Windows systems, some Unix/Linux systems, network and storage devices. SCOM 2012 provides no single points of failure, and monitors services, devices and operations for many computers and devices from a single console. SCOM enables checks for health, performance and availability for all monitored objects in the environment, and helps identify and resolve problems.

SCOM 2012 R2 added bug fixes, the ability to monitor the health of private clouds, .NET application performance monitoring, IPv6 support, Java application performance monitoring, analysis of Microsoft software installations (via System Center Advisor), and improved UNIX and Linux monitoring. For a complete listing of new features in SCOM 2012 R2, refer to <u>Microsoft TechNet</u>.

2.3 Dell Compellent Storage Center Management Pack 3.0

The Dell Compellent Storage Center Management Pack 3.0 for SCOM 2012 is a collection of monitors, rules, tasks, views and reports specifically designed to provide accurate and timely information obtained from Storage Center to the SCOM server. Utilizing the Dell Compellent Storage Center Management Pack, SCOM can monitor active alerts, disk class performance, volume performance, disk class space usage, volume space usage, and controller states for Storage Center.

SCOM traditionally acquires data via the use of a monitoring agent that is installed on a client device, such as a server or workstation. Using the Windows Management Instrumentation (WMI) Provider on the local machine, the SCOM agent collects discovery, performance and usage data from information published to WMI. Using the SCOM Management Console, Systems Administrators can view information collected from installed agents.

Unlike the traditional SCOM data collection model, a monitoring agent cannot be installed locally on a Storage Center controller. In previous versions of the Dell Compellent Storage Center Management Pack, a Storage Center Monitor Service needed to be installed on server monitored by SCOM. The Monitoring Service would collect data from the Storage Center using web-based (API) inquiries. The Monitor Service would act as a WMI Provider and publish collected Storage Center data to WMI in order for the SCOM server to access it via WMI calls.



Rather than querying the Storage Center directly, Management Pack 3.0 uses Dell Compellent Enterprise Manager as the data collector. The Management Pack uses a WMI Provider to query for Storage Center component and performance data from the Enterprise Manager API web service. The WMI provider can be configured to connect to one or more Dell Compellent API endpoints, and can query information from multiple Storage Centers. By utilizing Enterprise Manager as the only data collector, the number of calls to Storage Center that could affect performance is reduced significantly.

2.4 SCOM data collection overview

As shown in Table 2, SCOM uses three methods to gather and collect data:

- **Discoveries**: Run every four hours and reports on new information found since the last run. SCOM reports changes to the Storage Center, such as addition of a new controller of new volume creation. When SCOM discovers a new controller, it initiates discoveries of the controller configuration, such as volumes and replications.
- **Performance Collection Tasks**: The default polling interval for these tasks is 15 minutes and collects performance (I/O) data for defined objects in SCOM.
- Event Collection Tasks: Run every 60 seconds and collect alerts.

Note: Management Pack 3.0 does not use WMI events to collect Storage Center alerts.

In addition to the SCOM defaults, Management Pack 3.0 monitors the status of discovered classes every five minutes, Storage Center alerts are collected every five minutes, and Storage Center usage data (available space, used space) is collected every 12 hours.

Data Collection Method	Default polling interval
Discoveries	Every four hours
Performance collection	Every 15 minutes
Event collection	Every 60 seconds
Storage Center usage	Every 12 hours

Table 2 Data collection methods

Note: Default polling intervals can be changed using Overrides in SCOM, or by changing associated values in Enterprise Manager. Section 5 in this document provides information on Overrides.



3 Management Pack installation and configuration

Use this section as a supplement to the *Dell Compellent Management Pack 3.0 for Microsoft SCOM Administrator's Guide* found on <u>Knowledge Center</u>.

As mentioned above, Management Pack 3.0 uses Enterprise Manager as the data collector, and uses a WMI Provider to query data from Enterprise Manager. The WMI Provider converts data received from the Dell Compellent API to WMI classes which SCOM uses to collect and display data. The WMI Provider needs to be installed on a physical or virtual server that has visibility to both the Enterprise Manager server as well as the SCOM server. In addition, a SCOM monitoring agent must be installed on the server where the WMI Provider is installed. For information on installing a SCOM monitoring agent, please refer to Microsoft TechNet.

Note: As a best practice, the WMI Provider should be installed on the same server as Enterprise Manager in environments with three or fewer monitored Storage Centers. Larger installations may require the use of more than one WMI Provider.

3.1 Upgrading from Management Pack 2.0

Because Management Pack 3.0 uses a different data collection method than previous versions, there is no upgrade path from Management Pack 2.0. However, Management Pack 3.0 can be installed and run sideby-side with an existing installation of MP 2.0.

Note: Management Pack 3.0 cannot display any data collected from version 2.0 and vice-versa.

3.2 Uninstalling the Management Pack from SCOM

The Management Pack files can be removed from the server by using the **Uninstall a program** option from **Control Panel**. When the files have been removed, the MP must still be removed from SCOM.

Note: This process applies to both Management Pack 2.0 and 3.0.

To remove the Management Pack from SCOM:

- 1. Log on as an administrator to the SCOM server.
- Open the SCOM Operations Console by going to Start > Apps > Microsoft System Center 2012 > Operations Console.
- 3. In the Operations Console click Administration workspace.

	Monitoring
	Authoring
	Reporting
O	Administration
	My Workspace

4. In the Administration menu, select Management Packs.

Administration	<				
🔺 🌼 Administration					
룚 Connected Management Groups					
🔺 🛅 Device Management					
📹 Agent Managed					
🎰 Agentless Managed					
🏭 Management Servers					
💕 Pending Management					
🚦 UNIX/Linux Computers					
🎕 Management Packs					

5. In the Management Packs listing, right-click **Dell Storage Library** and select **Delete**.

Management Packs (100)								
🔍 Look for:			Find Now	Clea	r			
Name					Version	Sealed	Date Imported	Description
📷 360 Application Monitoring Dash	board	ls			7.1.10226.0	Yes	2/5/2014 2:16:1	
📷 Baselining Tasks Library					7.0.8433.0	Yes	2/5/2014 2:08:0	System Baselining Ta
📷 Client Monitoring Internal Library					7.1.10226.0	Yes	2/5/2014 2:14:1	Microsoft System Ce
📷 Client Monitoring Library					7.1.10226.0	Yes	2/5/2014 2:09:2	Microsoft System Ce
ቘ Client Monitoring Overrides Man	agem	ient Pack			7.1.10226.0		2/5/2014 2:14:3	This management p
📷 Client Monitoring Views Library					7.1.10226.0	Yes	2/5/2014 2:14:0	Microsoft System Ce
📷 Data Warehouse Internal Library					7.1.10226.0	Yes	2/5/2014 2:23:4	Microsoft System Ce
📷 Data Warehouse Library					7.1.10226.0	Yes	2/5/2014 2:09:1	Microsoft System Ce
🚟 Default Management Pack					7.1.10226.0		2/5/2014 2:14:1	This management p
📷 Dell Storage Library	-	-	~	1	3.0.0.30	Yes	3/3/2014 9:17:0	Dell Storage Library
📷 Distributed Application Designer	42	Сору	Ctrl+C		7.0.8433.0	Yes	2/5/2014 2:09:0	System Center Distri
📷 Health Internal Library		Properties			7.0.8433.0	Yes	2/5/2014 2:09:3	System Health Interr
📷 Health Library	10	Export Managem	ent Pack		7.0.8433.0	Yes	2/5/2014 2:07:4	System Health Libra
📷 Image Library (System Center)	×	Delete	Del		7.1.10226.0	Yes	2/5/2014 2:09:3	Microsoft System Ce
📷 Image Library (System)	Dei		7.5.8501.0	Yes	2/5/2014 2:08:0	System Image Librar		

6. Click **Yes** to remove the Management Pack.



7. Once it has been removed it will no longer show in the Management Packs window.

Management Packs (99)								
🔍 Look for:	Find Now	Clea						
Name								
📷 360 Application Monitoring Dashboards								
📷 Baselining Tasks Library								
📷 Client Monitoring Internal Library								
📷 Client Monitoring Library	📷 Client Monitoring Library							
🚟 Client Monitoring Overrides Management Pack	🧱 Client Monitoring Overrides Management Pack							
🚟 Client Monitoring Views Library								
📷 Data Warehouse Internal Library	🧱 Data Warehouse Internal Library							
📷 Data Warehouse Library								
🚟 Default Management Pack								
📷 Distributed Application Designer Library								



4 Management Pack components

The Dell Compellent Management Pack 3.0 monitors, collects and displays the following Storage Center information:

- Active alerts
- Performance (through dashboards)
- Controllers
- Disks
- Enclosures
- Replications
- Servers
- Storage types
- Volumes

In addition, the Management Pack displays health information for discovered data collectors and WMI Providers. Only components that require special configuration or attention will be covered in this section.

4.1 Active alerts

The Storage Center Management Pack discovers new alerts generated by Storage Center every 60 seconds. Alerts are classified into the following severities:

- Informational
- Warning
- Critical

Note: The created date shown on an active alert is the time when SCOM discovered the alert. To show the time Storage Center actually created the alert, click the alert and view the **Originally Created** date under the **Alert Description** in the details.

Alert Details								
😣 Volume 'S	t-oel5u5-GI-OraBin-backuphost-vol_OLD' Down: History Not operational	Alert Description						
Source:	5C 14	Instance: [703-203] St-oel5u5-Gl-OraBin-backuphost-vol_OLD						
5	TSSRVKPEM01.techsol.local\EmDataCollector_63b62ae4-f54c-41ca-	Storage Center: SC 14						
Full Path Name:	8641-4fc34cfdb094\SC 14	Description: Volume 'St-oel5u5-GI-OraBin-backuphost-vol_OLD' Down: History Not						
Alert Rule:	Storage Center Alert Rule	operational						
Created:	2/28/2014 5:55:15 PM	Alert Status: Down						
		Active: true						
		Acknowledged: false						
		Originally Created: 02/28/2014 11:48:08						

Figure 1 Alert details

4.1.1 Threshold alerts

SCOM only monitors the status of Storage Center objects, and therefore will not discover or report on threshold alerts created through Enterprise Manager. However, if a defined threshold is met for a Storage Center object (a volume, for example) and that threshold changes the status of the object, SCOM will report back on the status change.

4.1.2 Closing alerts

Closing an alert in SCOM does not remove the alert from Storage Center. If an alert still exists on Storage Center, SCOM will re-discover that alert and display it even if that same alert was previously deleted. To effectively remove an alert from SCOM, the underlying issue must be resolved on the Storage Center.

Overrides can be created to ignore specific alerts, change the frequency that SCOM queries Storage Center for alerts, and to only display specific severities. For more information about Overrides, please refer to Section 5 of this document.

4.2 Replication monitoring

To monitor Storage Center replication in Enterprise Manager both the source and destination Storage Centers need to be defined. Within the SCOM management pack, replication health status can be viewed in the Storage Centers view. A listing of all the replications is available from the Replication View under the Storage Center Replications folder.

Storage Centers (2)								
🔍 Look for:		Find Now Clear						
State	Ø	Name	Path	Storage SerialNumber 🕢 Center Replication				
🔞 Critical		SC 18	TSSRVKPEM01	716		🕢 Hea	althy	
🔞 Critical		SC 14	TSSRVKPEM01	703				

Figure 2 Storage Center Replication

Note: Although both the source and destination Storage Centers need to be defined to view Replication status, SCOM will only show status on the source Storage Center.

Replication View (10)								
🔍 Look for:				Find Now Clear				
State 🗸	• 🧭	SourceStorage	DestinationSto	Name				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV225_WS12DC-R2_VL_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV224_WS12DC-R2_VL_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'Dell_R620-G12_WS12DC-R2_VL_Boot_GoldImage'				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV222_WS12R2VL_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV223_WS12R2VL_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV235_FCoE_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'Dell_R620-G12_W2K8R2Ent_Boot_GoldImage'				
🕢 Healthy		SC 18	SC 14	Replication of 'Dell_R620-G12_W12DC_Boot_GoldImage'				
🕢 Healthy		SC 18	SC 14	Replication of 'TSSRV220_WS12R2VL_Boot'				
🕢 Healthy		SC 18	SC 14	Replication of 'Dell_R320_G12_W12DC_FCoE_Gold_Boot'				

Figure 3 Detailed replication information

Clicking on a replication will show more information in the **Detail View** window.

Detail View								
Storage Center Replication pr	operties of Replication of 'TSSRV225_WS12DC-R2_VL_Boot'							
Display Name	Replication of 'TSSRV225_WS12DC-R2_VL_Boot'							
Full Path Name	SSRVKPEM01.techsol.local\EmDataCollector_63b62ae4-f54c-41ca-8641-4fc34cfdb094\SC 18\Replication of 'TSSRV225_WS12DC-R2_VL_Boot'							
ChildStatus	Up							
Deduplication	false							
DestinationSerialNumber	703							
DestinationStorageCenter	SC 14							
DestinationVolume	Repl of TSSRV225_WS12DC-R2_VL_Boot							
DestinationVolumeIndex	1209							
Index	63							
InstanceId	716.63							
InstanceName	Replication of 'TSSRV225_WS12DC-R2_VL_Boot'							
LiveVolume	false							
PauseAllowed	true							
QosNode	1GB							
QuosNodeIndex	1							
RepIDeviceIndex	56							
ReplicateActiveReplay	false							
ReplicateStorageToLowestTier	true							
RepINodeIndex	56							
Simulation	false							
SourceStorageCenter	SC 18							
SourceVolume	TSSRV225_WS12DC-R2_VL_Boot							
SourceVolumeIndex	14914							
State	Up							
StateMessage								
Status	Up							

Figure 4 Replication detail

4.3 Dashboards

SCOM dashboards were created to allow quick access to multiple data points. This is particularly useful in troubleshooting scenarios, and when data is contained in different views. Compared to previous versions, SCOM 2012/R2 includes enhancements in the ability to display data through dashboards, making dashboards a very powerful and useful tool.



The Storage Center Management Pack contains the following predefined performance and usage dashboards:

- Storage Center IO Performance
- Storage Center Usage
- Controller IO Performance
- Disk Class IO Performance
- Server IO Performance
- Server Usage
- Volume IO Performance Dashboard
- Volume Usage



Figure 5 Storage Center IO performance dashboard



Note: The Storage Center data displayed in performance dashboards is collected every 15 minutes. Storage Center data displayed in usage dashboards is collected every 12 hours. Both performance and usage collection intervals can be changed with overrides.

4.4 WMI Provider

The WMI Provider folder contains health information about any discovered data collectors and WMI Providers. In most cases, the WMI Provider will be installed on the data collector (Enterprise Manager) server, meaning a single SCOM monitoring agent can detect and report the WMI Provider installation and server health information back to SCOM.



Figure 6 WMI provider folder

The Data Collectors folder will only contain the health status of the Data Collector server defined within the WMI Provider.



Figure 7 Data collector detail



The WMI Data Collector Providers shows all detected WMI Providers in the environment.

WMI Data Collector Providers (1)							
🔍 Look for:		Find Now	Clear				
State 🔺 🖉 Name		P	ath				
Healthy TSSRVKPEN	/101.techsol.local						
Detail View							
👸 WMI Data Collector Provid	er properties of TSSRVKPEM0	1.techsol.loca	il i				
Display Name	TSSRVKPEM01.techsol	.local					
Full Path Name	TSSRVKPEM01.techso	I.local					
Principal Name	TSSRVKPEM01.techsol	.local					
DNS Name	TSSRVKPEM01.techsol	TSSRVKPEM01.techsol.local					
NetBIOS Computer Name	TSSRVKPEM01						
NetBIOS Domain Name	TECHSOL						
IP Address	172.16.27.47						
Network Name	TSSRVKPEM01.techsol	.local					
Active Directory SID	S-1-5-21-2761725266-	3332059971-2	260995164-3036				
Virtual Machine							
DNS Domain Name	techsol.local						
Organizational Unit	CN=Computers,DC=t	echsol, DC=lo	cal				
DNS Forest Name	techsol.local						
Active Directory Site	Default-First-Site-Nan	ne					
Logical Processors	8						
Physical Processors	1						
Host Server Name							
Virtual Machine Name							
Offset In Minutes From Greenwig	:h Time						
Last Inventory Date							

Figure 8 WMI data collector provider details

Note: The status of both the Data Collector and WMI Provider must show as healthy for the Management Pack to receive any Storage Center data.

In situations where SCOM cannot communicate with the Data Collector, the entry for the Data Collector will show a greyed out status. In most cases, this indicates a problem with the Microsoft monitoring agent on the Data Collector server, but could be indicative of a problem with the SQL database. Please refer to Section 6 of this document for troubleshooting steps.

Data Collectors (1)								
🔍 Look for:				Find Nov	v Clear			
State 🔺	\bigotimes	Name	Path		Status			
Healthy		EmDataCollector	TSSRVKPEM01.tec	hsol.local:	Up			





5 Overrides

Overrides are used in SCOM to change monitoring settings for monitors, attributes, object discoveries, and rules. Overrides can be applied to individual objects, or groups of objects.

The Dell Compellent Management Pack 3.0 is preconfigured with monitors that do not require any configuration, although overrides can be used to modify the default configuration.

Note: Overrides can only be created for targets in the following Dell Compellent Management Pack objects: monitors, object discoveries and rules.



Figure 10 Management pack objects

In SCOM 2012/R2, overrides can be created from the Monitoring or Authoring pane.

5.1 Creating an override from the Monitoring pane

To create an override from the **Monitoring** pane:

- 1. Right-click an active alert and click **Overrides** > **Override the Rule** and then select an option to create an override for.
 - For the specific alerted object
 - For all objects of the class the object belongs to
 - For a group
 - For a specific object of the current class
 - For all objects of another class

A 11 AL 1 (110)							
Active Alerts (118)							
🔍 Look for:		Find Now	Clear				
🖗 I Path Source	- 🖉	Name				Resolution State	Created
SC 5		Remote SAS Po	rt 5000C500	0D7C7/	A72 Down	New	3/11/2014 7:40:11 AM
🐼 TSSRVK Open	•	Remote SAS Po	rt 5000C500	0D7C7	A71 Down	New	3/11/2014 7:40:11 AM
🔞 TSSRVK 📆 Notification subscripti	on 🕨	Remote SAS Po	rt 5000C500	04D171	8E Down	New	3/11/2014 7:40:11 AM
Set Resolution State	•	Remote SAS Po	rt 5000C500	04D171	8D Down	New	3/11/2014 7:40:11 AM
🐼 TSSRVK 👔 Close Alert		Local SAS Port	5000D31000	02CC11	I Invalid C	New	3/11/2014 7:40:11 AM
SSRVK Forward to	•	Local SAS Port	5000D31000	02CC1E	O Invalid C	New	3/11/2014 7:40:11 AM
🐼 TSSRVK		Local SAS Port	5000D31000	02CC25	invalid C	New	3/11/2014 7:40:11 AM
SSRVK	•	Local SAS Port	5000D31000	02000	Invalid C	New	3/11/2014 7:40:11 AM
🔞 TSSRVK 👼 Overrides	•	Disable tl	he Rule	•	path	New	3/11/2014 9:35:11 AM
🔞 TSSRVK 🔘 View or edit the setting	gs of this rule	Override	the Rule	•	For th	e object: SC 5	
Severity: V Q Refresh	F5	Summan	у	•	For all	objects of class: S	torage Center
🛕 TSSRVK 📷 Personalize view		Local SAS Port	5000D31100	039C20	For a	group	
		Local SAS Port	5000D31100	039C74	For a s	specific object of c	lass: Storage Center
		Local SAS Port	5000D31100	039C70	For all	objects of anothe	r class
A TSSRVKPEM01.techsol SC1		Local SAS Port	5000D31100	039C24	Invalid C	New	3/11/2014 7:40:11 AM

Note: Pay careful attention to the option selection. Choosing the wrong option could result in SCOM no longer reporting critical alerts from Storage Center.

For information about setting override properties, refer to Section 5.3.

5.2 Creating an override from the Authoring pane

To create an override from the Authoring pane:

1. From the SCOM Management Console click Authoring.





2. Click Management Pack Objects.

Authoring	<
🔺 📝 Authoring	
🕨 📀 Management Pack Templates	
🖄 Distributed Applications	
🖾 Groups	
🖉 📆 Management Pack Objeds	
E Attributes	
💿 Monitors	
📷 Object Discoveries	
🐺 Overrides	
🧮 Rules	
🍺 Service Level Tracking	
Tasks	
💋 Views	

3. In the Management Pack Objects window, click Scope on the menu bar.





The Scope Management Pack Objects window appears.

	Scope Managen	nent Pack Objects	x					
Select the class, group, or object that you want to target from the list below. You can also filter or sort the list to make items easier to find.								
Look for:								
		Clear						
View common targets								
View <u>all</u> targets								
Target	Management Pack	Description						
.NET Application Monitor	Operations Manager APM Inf	.NET Application Monitoring Agent						
Activated APM Agent	Operations Manager APM Inf	Activated APM Agent						
AdvisorConnector Class	Microsoft System Center Adv		≡					
🔄 Agent	System Center Core Library	All System Center Agents.						
📃 Client-Side Monitoring A	Operations Manager APM Inf	Client-Side Monitoring Agent						
Collection Server	System Center Core Library	This class represents an Collection Management Server.						
Computer	System Library	Defines the basic properties of all computers, such as a V	<					
📃 Computer Network Adap	Windows Core Library							
📃 Computer Network Adap	UNIX/Linux Core Library	All UNIX/Linux Computer Network Adapters						
📃 Data Access Service	System Center Operations M	System Center Data Access Service						
📃 Data Warehouse Connec	Data Warehouse Library	All Management Servers capable of sending data to the S	5					
DataCollector	Dell Storage Library							
🔲 Gateway	System Center Core Library	Properties of a gateway management server						
Health Service	System Center Core Library	This type represents the System Center Health Service.						
IIS Hosted WCF Web Ser	Operations Manager APM W	IIS Hosted WCF Web Service Endpoint						
Management Configurati	System Center Operations M	System Center Management Configuration Service appli	1					
Management Server	System Center Core Library	This class represents the Management Server.	\mathbf{r}					
<		>						
Select All	51 total Targets, 51 visible, 0	selected						
		Help OK Cancel						

- 4. Use the **Look for:** field to:
 - Filter down to a specific target
 - Sort all targets by Management Pack
 - a. To search for a specific target leave the **View common targets** radio button selected and type in a specific target name.

Scope Management Pack Objects										
Select the class, group, or obje items easier to find.	st to make									
Look for:		_								
Dell	Cl <u>e</u> ar									
View common targets										
O View <u>all targets</u>										
Target	Management Pack	Description								
DataCollector	Dell Storage Library									
VVMI Data Collector Provi	Dell Storage Library									
	-									
<u>S</u> elect All <u>C</u> lear All	51 total Targets, 2 visible, 0 s	elected								
			Hale	OK	Consol					
			neip		Cancel					

b. To see all targets of a specific management pack select the **View all targets** radio button and type in the name of the management pack.

	Scope Mana	gement Pack Objects	X					
Select the class, group, or object that you want to target from the list below. You can also filter or sort the list to make								
Look for:								
Dell Storage			<u> </u>					
View common targets								
View <u>all</u> targets								
Target	Management Pack	Description	^					
DataCollector	Dell Storage Library							
📃 Dell Storage Center Disk	Dell Storage Library							
📃 Dell Storage Enclosure Di	Dell Storage Library							
📃 Storage Center	Dell Storage Library							
📃 Storage Center Compon	Dell Storage Library		=					
Storage Center Controlle	Dell Storage Library							
Storage Center Controlle	Dell Storage Library							
📃 Storage Center Controlle	Dell Storage Library							
Storage Center Controlle	Dell Storage Library							
Storage Center Controlle	Dell Storage Library							
Storage Center Disk Clas	Dell Storage Library							
Storage Center Disk Encl	Dell Storage Library							
Storage Center Enclosure	Dell Storage Library							
Storage Center Enclosure	Dell Storage Library							
Storage Center Enclosure	Dell Storage Library							
Storage Center Enclosure	Dell Storage Library		_					
Storage Center Fan Sens	Dell Storage Library		~					
<		ш	>					
<u>S</u> elect All <u>C</u> lear All	1104 total Targets, 26 v	isible, 0 selected						
		Help	OK Cancel					
		<u>T</u> eh	Cancer					

- 5. Select the Management Pack target(s) to edit and click **OK**.
- 6. When a scope has been defined, a message similar to the following is displayed in the Management Pack Objects pane:

Management Pack Objects		
Management pack objects are now scoped to: Dell Storage Center Disk Cl	hange Scope	×

- 7. To modify the existing scope, click **Change Scope...**
- 8. Create an override in one of three ways:
 - Right-click on the target, select **Overrides**, and then select **Override the Rule**.

Rules (2)										
Management pack objects are now scoped to: Storage Center, Storage Center Server, Storage Center Volume										
🔍 Look for: Storage Center Aler	t	1	Find N	ow	Clear					
Name Inheri				rited	from	Managem	ent P	Pack	Created	Enab
▲ Type: Storage Center (2)	Type: Storage Center (2)									
Storage Center AlertThresholdS		Create a peru rule	<u>.</u>	ge C	enter	Dell Stora	ge Lik	brary	3/11/2014 7:24:12 A	Yes
📄 Storage Center Alert Rule	=	create a new rule		ge C	enter	Dell Stora	ge Lik	brary	3/11/2014 7:24:12 A	Yes
	1000	Properties								
		Disable								
	3	Overrides	•		Disable the Rule	• •]			
		Overrides Summary			Override the Rul	le ▶		For all objects of class: S	Storage Center	
	\times	Delete De	el					For a group		
	Q	Refresh F	5					For a specific object of o	class: Storage Center	
				_				For all objects of anothe	er class	



- Select **Overrides** on the **Action** pane, then select **Override the Rule**.

> 1	asks			
2	•			
Rule	e			^
	Create a R	tule		
	Properties	;		
	Disable			
5	Overrides	Disable the Rule	•	
X	Delete	Override the Rule	•	For all objects of class: Storage Center
		Summary	•	For a group For a specific object of class: Storage Center
				For all objects of another class

- Click the **Overrides** tab on the menu bar, and then select **Override the Rule**.

	File Edit View Go Tasks Tools Help						
	Search 👻 📮 📰 Create a l	Rule ₌	Overrides 👻 📮 🚺	Scope	F	ind 🚺 Tasks 🔞 🝦	
	Authoring <	Rules (2	Disable the Ru	le 🕨			_
	🔺 📝 Authoring	Man	Override the F	ule 🕨		For all objects of class: Storage Center	me
	Management Pack Templates	🔍 Loc	Summani		1	For a group	
🕸 Distributed Applications		Name				For a specific object of class: Storage Center	ien
	🔤 Groups	▲ Type: Storage Center (2)				For all objects of another class	
	= Hanagement ack objects	📄 St	E Storage Center AlertThresholdSpace Collection Rule Storage Center				

Xel

9. Select the appropriate override option from the menu.

5.3 Setting override properties

An override created from the Authoring or Monitoring panes is ultimately displayed in the **Override Properties** window.

Override Properties								x	
Rule nar	me:	Storage	Center AlertThresho	IdSpace Collectio	n Rule				
Category	р.	Performa	nce Collection						
Override	Overrides target: Class: Storage Center								
<u>O</u> verride	-controlled	parameters:					Show Rule Prop	erties	
	Override	Parameter Name 🔺	Parameter Type	Default Value	Override Value	Effective Value	Change Status	Er	
•		Enabled	Boolean	True	True	True	[No change]		
		Frequency	String	43200	43200	43200	[No change]		
<								>	
Details:									
Enable	≥d		De	scription				Edit	
The par manage is the de	rameter is r ement pack efault value	not set by a custom over . The effective value of a of this parameter.	ride or by a this parameter						
Manag	ement pa	ack							
Select d	destination	management pack:							
<select< th=""><td>t Managem</td><td>ient Pack></td><td></td><td></td><td></td><td></td><th>✓ Ne</th><td><u>w</u></td></select<>	t Managem	ient Pack>					✓ Ne	<u>w</u>	
He	alp					OK	Apply	ancel	
He	sib					UK	Apply	ancel	

Figure 11 Override properties

To set an override:

1. Select the parameter(s) to override. A corresponding override value must be applied to the parameter(s). To enable the override, check the **Enforced** box.



				Override Pr	operties			
lule n	ame:	Storage	Center AlertThresho	oldSpace Collectio	n Rule			
atego	ary:	Perform	ance Collection					
) verric	des target:	Class: 9	itorage Center					
verric	de-controlled	parameters:					<u>S</u> how	Rule Properties
	Override	Parameter Name	Parameter Type	Default Value	Override Value	Effective Value	Change Status	Enforced
		Enabled	Boolean	True	True	True	[No change]	
•	~	Frequency	String	43200	900	43200	[Added]	~
<								
<								
< Details	c			III				C de
< etails Freq	uency		De	III scription				Edit
< etails Freq The r availa	: uency iew custom o ible]".Click ap	veride will be created	De in the '[Not ffective value	scription				Edit
< etails Freq The r availa for thi	: uency iew custom o ible]".Click ap s parameter.	venide will be created ply to view the new e	in the "[Not ffective value	scription				Edit
< F req The r availator thi	: uency lew custom o ible]".Click ap s parameter.	veride will be created ply to view the new e	in the "[Not frective value	III escription				<u>E dr</u>
< etails Freq The r availa or thi	: uency iew custom o ible]".Click ap s parameter.	veride will be created ply to view the new e	in the "[Not frective value	III scription				Edit
< etails Freq The r availa	: uency iew custom o ble]"Click ap s parameter.	verride will be created ply to view the new e	in the "[Not ffective value	III scription				Edr
< etails Freq The r availa for thi	c uency lew custom o sble]".Click ap s parameter.	veride will be created ply to view the new e	in the [Not ffective value	scription				Edt
< Details Freq The r availa for thi	euency lew custom o s parameter.	veride will be created ply to view the new e nck	in the [Not ffective value	III scription				Edk
< Details Freq The r availa for thi Mana	: uency ible].Click ap sparameter. igement pa	veride will be created ply to view the new e not not not not not not not not not not	in the [Not ffective value	scription				Edu
< Details Freq The r availa for thi Mana Seject <sele< td=""><td>: uency ible]:Click ap s parameter. igement pa t destination :</td><td>verride will be created ply to view the new e net with the new e net Pack:</td><td>in the 'Not ffective value</td><td>scription</td><td></td><td></td><td>v</td><td>Edt.</td></sele<>	: uency ible]:Click ap s parameter. igement pa t destination :	verride will be created ply to view the new e net with the new e net Pack:	in the 'Not ffective value	scription			v	Edt.
< Details Freq The r availa for thi Seject <sele< td=""><td>: uew custom o bible].Click ap s parameter. gement pa t destination sct Managem</td><td>verride will be created ply to view the new e ply to view the new e new ent Pack: ent Pack:</td><td>in the [Not ffective value</td><td>scription</td><td></td><td></td><td>~</td><td><u>Edr</u></td></sele<>	: uew custom o bible].Click ap s parameter. gement pa t destination sct Managem	verride will be created ply to view the new e ply to view the new e new ent Pack: ent Pack:	in the [Not ffective value	scription			~	<u>Edr</u>
< etails Freq The r availa for thi deject <sele< td=""><td>s uency wew custom o bible].Click ap s parameter. s parameter. agement pa t destination i set Managem</td><td>veride will be created ply to view the new e ply to view the new e new ent Pack: ent Pack:</td><td>in the [Not ffective value</td><td>II scription</td><td></td><td></td><td>~</td><td>Edd</td></sele<>	s uency wew custom o bible].Click ap s parameter. s parameter. agement pa t destination i set Managem	veride will be created ply to view the new e ply to view the new e new ent Pack: ent Pack:	in the [Not ffective value	II scription			~	Edd
< Details Freq The r availa for thi Seject <sele< td=""><td>c uency ewe custom o s parameter. gement pa t destination i sct Managem</td><td>veride will be created ply to view the new e net net management pack: ent Pack></td><td>in the TNot ffective value</td><td>III</td><td></td><td></td><td>~</td><td>Edit</td></sele<>	c uency ewe custom o s parameter. gement pa t destination i sct Managem	veride will be created ply to view the new e net net management pack: ent Pack>	in the TNot ffective value	III			~	Edit
< Details Freq The r availa for thi Seject <sele< td=""><td>c uency wew custom o biglic Jicks age s parameter. agement pa t destination i cct Managem</td><td>verride will be created ply to view the new e new e ne</td><td>in the []Not ffective value</td><td>scription</td><td></td><td></td><td>v</td><td>Edt</td></sele<>	c uency wew custom o biglic Jicks age s parameter. agement pa t destination i cct Managem	verride will be created ply to view the new e new e ne	in the []Not ffective value	scription			v	Edt

2. Select the override destination management pack.

Management pack	
Select destination management pack:	
<select management="" pack=""></select>	✓ Ne <u>w</u>
<select management="" pack=""></select>	
Client Monitoring Overrides Management Pack	
Default Management Pack	
Microsoft System Center Application Monitoring 360 SLA	
Microsoft.SystemCenter.SecureReferenceOverride	
Network Discovery Internal	

Note: Microsoft does not recommend saving overrides to the default Management Pack. As a best practice, create a new management pack to save Overrides.

- 3. Create a new Management Pack.
 - a. Click New...



ă.	Create a Management Pack	×
General Properties		
General Properties		🕢 Help
Knowledge	Management Pack General Properties	
	I <u>D</u> :	
	Na <u>m</u> e :	
	Version -	
	1.0.0.0 For example, 1.0.0.0	
	Description :	
	< Previous Next > Create	Cancel

b. Assign a name to the Management Pack and if desired, assign a version and provide a description. Click **Next**, and on the following screen, click **Create**.

ă.	Create a Management Pack
General Properties	
General Properties	@ Нер
Knowledge	Management Pack General Properties
	I <u>D</u> :
	Dell.Compellent.Overrides
	Na <u>m</u> e :
	Dell Compellent Overrides
	Version :
	Por example, 1.000
	Description : This Management Pack will be used to store Overrides created for Monitors, Object
	Discoveries and Rules that are contained in the Dell Compellent Management Pack 3.0.
	< Previous Next > Create Cancel

4. Verify that the newly created Management Pack is selected, and click **OK**.



Management pack		
Select destination management pack:		
Dell Compellent Overrides	~	New

The override takes effect immediately.

5. To see effective overrides for a particular monitor, object discovery or rule, right-click the item and select **Overrides Summary**.

Overrides Summary							
Rule: Storage Center AlertThresholdSpace Collection Rule							
Overrides that affect	this rule:		<u> </u>				
Class	Name	Parameter	Changed value				
Class	Storage Center	Frequency	900				
Help			Close				
Tob			<u></u>				

6. To view all overrides applied to a specific scope, click **Overrides** in the **Management Pack Objects** menu in the **Authoring** pane.

Authoring <	Overrides (1)								
4 📝 Authoring	Management pack objects are now scoped	er Server, Storage	CenterVolume				Change Scope		
Management Pack Templates	🔍 Look for:		Find Now	Clear					
2 Distributed Applications	Override Target	Context	Parameter	Default Value	Override Value	Scope	Enforced	Override Management Pack	Target Management Pack
Groups	Management Pack Object Type: Rule (1)								
A troibuter	▲ Target: Storage Center (1)								
Monitors	Bornage Center AlertThresholdSpace	Storage Center	Frequency	43200	900	Class	Yes	Dell Compellent Overrides	Dell Storage Library
Diject Discoveries									
🌄 Overrides									
📄 Rules									
🃝 Service Level Tracking									
Tasks									
🖉 Views									



6 Troubleshooting

This section provides tips and resources to help identify and resolve common issues with the WMI Provider, Enterprise Manager, SCOM, and SQL server.

6.1 Troubleshooting the WMI Provider installation

The WMI Provider is the first place to investigate when objects are not being discovered by the Management Pack. The following steps will ensure proper operation of the WMI Provider.

- 1. Ensure the WMI Provider has been marked for discovery.
 - a. Select the Allow discovery of this provider from the Dell Storage Management Pack for System Center Operation Manager check box in the Dell Storage WMI Provider Configurator tool.

Dell Stora	age WMI Provider	Configurator	_ 🗆 X
Dell Storage	WMI Prov	ider Configu	irator
Allow discovery of this provider from the De Provider Data Collectors	ell Storage Management	Pack for Systems Center Oper	rations Manager
TSSRVKPEM01	Host Name : Port : User Name : Password :	TSSRVKPEM01 3033 Admin	
Add Remove	Confirm Password :		Test Connection

- 2. Test the connection(s) to the Provider Data Collectors.
 - a. Click **Test Connection** in the Dell Storage WMI Provider Configurator tool to validate the connection settings for each of the defined Data Collectors.



Dell Storage WMI Provide	er Configurator	
Dell Storage WMI Prov		
Allow discovery of this provider from the Dell Storage Managemen Provider Data Collectors	t Pack for Systems Center Operations Manager	
TSSRVKPEM01 Host Name : Port :	TSSRVKPEM01 3033	Test Connection X
Password : Confirm Password :		Connected successfully.
<u>A</u> dd <u>R</u> emove	Iest Connection Save Cancel	ОК

- 3. Check that the WMI Provider has been correctly registered.
 - a. Log on as an administrator to the WMI Provider server.
 - b. Open PowerShell and type in the command below to ensure a list of classes beginning with the **Dell_** prefix is displayed.

PS C:\> gwmi -List -Namespace "root\Dell\Storage" | ?{\$_.Name -like 'Dell_*'} | select Name <enter>

c. If the WMI Provider has been correctly registered, the following output is received.



d. If no class names are returned, the WMI Provider was not correctly registered. To register the provider manually, run the Dell.Storage.WMIConfigurator.exe with the /i switch from within PowerShell (or the command prompt).

```
PS C: > cd 'C: Program Files (x86) \Dell\Dell Storage WMI Provider' <enter>
```

PS C:\Program Files (x86)\Dell\Dell Storage WMI Provider>
.\Dell.Storage.WMIConfigurator.exe /i <enter>

e. Run the PowerShell **gwmi** command again to verify the Dell WMI Provider classes are displayed.

6.2 WMI Provider logging

If SCOM is not receiving the expected data from Enterprise Manager, the WMI Provider log can be referenced to review errors and information. In extreme cases, the WMI Provider can be configured to log full trace information.

On the server where the WMI Provider is installed, the log is located at C:\Windows\Microsoft.NET\assembly\GAC_64\Dell.Storage.Instrumentation\v4.0_3.0.0.x with the log name is Dell.Storage.Instrumentation.txt.

By default, the WMI Provider log is configured to only capture errors. The logging level can be changed through the Windows registry, although not necessary in most cases.

Note: As a best practice, make a backup of the Windows registry before making any changes to it.

To change the level of logging for the WMI Provider:

- 1. Log on with administrator credentials to the Windows 2012/R2 server that is running the WMI Provider.
- 2. Launch the Registry editor by going to Start > Run > Regedit.
- In the Registry editor navigate to: HKEY_LOCAL_MACHINE\SOFTWARE\Dell\WMIDataCollectorProvider



- 4. Right-click WMIDataCollectorProvider and select New > DWORD (32-bit) Value.
- 5. Enter **LogLevel** for the name.
- 6. Right-click on the new entry and select Modify...
- 7. Enter a value and click **OK**.

Value settings are:

- **0**: Errors only (default)
- 1: Information and errors
- 2: Trace (including information and errors)

1. State of the second s			Registry Editor		l	- 🗆 X
File Edit View Favorites Help						
		Name (Default) Discoverable	Type REG_SZ REG_DWORD	Data (value not set) 0x00000001 (1)	Edit DWORD (32-bit) Value	×
	≡	LogLevel	REG_DWORD	0x00000001 (1)	Value name: LogLevel	
P → SECURITY → SOFTWARE → M ATL Technologies					value data: ■ Base ● Hexadecimal ○ Decimal	
 D Classes D Clients D Clients 					OK Cano	el
WMIDataCollectorProvider	~					
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Dell\WM	DataColle	ctorProvider				

Changes to the log level require the WMI Provider to be reloaded. When the SCOM agent is running, The WMI Provider is reloaded automatically approximately every 5 minutes.

6.3 Event viewer logs

If any trouble is experienced with SCOM, another place to look for problems is in the Event Viewer. Windows, SCOM, Enterprise Manager and the WMI Provider all log information and errors to the Event Viewer.

- Launch the Event Viewer by going to Start > Control Panel > Administrative Tools > Event Viewer.
- 2. SCOM records to the Operations Manager log under the Applications and Services Logs.





Note: The Operations Manager log is installed on the SCOM server and on any server running the Microsoft monitoring agent.

3. The WMI Provider records to the Application log under Windows Logs.



If errors are generated from the WMI Provider, the listed source is **Application Error**.

Application	Number of events: 936			
Level	Date and Time	Source	Event ID	Task C
🕕 Error	2/21/2014 3:36:33 PM	Application Error	1000	(100)



6.4 Enterprise Manager memory settings

Enterprise Manager can be used to monitor multiple Storage Centers throughout the enterprise. As the amount of Storage Centers and data collected increases, Enterprise Manager can suffer performance degradation. This can negatively affect SCOM, as well as other applications that rely on Enterprise Manager as a data collector.

To allow scaling in the amount of Storage Centers monitored, the amount of system memory Enterprise Manager uses can be configured during installation. Memory settings are based on the total number of Storage Centers and/or total volumes to monitor. As shown in the graphic below, Enterprise Manager can be configured to monitor multiple Storage Centers and over 5000 total volumes.

2	Enterprise Manager Data Collector Setup	×
Dé		Help
Netwo Select	rk Adaptor Settings (The Data Collector IP Address that managed-products, such as Storage Centers or FluidFS clusters, should use when communicating with Enterprise Mar nomatically Select Network Adapter 16 21.160 [vmxnet3 Ethernet Adapter]	iager.
Max N Set th 2 (4 (8 (0 16 0 32 0 32	Emory Settings a maximum amount of memory that the Data Collector process can use. 18 [Recommended for 1-2 Storage Centers or 1.500 total Volumes] 18 [Recommended for 3-5 Storage Centers or 501-1000 total Volumes] [Recommended for 6-10 Storage Centers or 1001-2000 total Volumes] [Recommended for 11+ Storage Centers or 2001-5000 total Volumes] [GB [Recommended for 11+ Storage Centers or 5000+ total Volumes] [GB [Recommended for 11+ Storage Centers or 5000+ total Volumes]	
? 1	ieb 🔶 🔶 Back	Next

Figure 12 Enterprise Manager memory settings

Note: When making changes to memory settings, it is important to consider how much memory is being consumed by the server and other running processes. Make sure that there is enough available memory on the server to match the Enterprise Manager settings. Setting the max memory too low can have adverse effects on Enterprise Manager and applications that use it. Setting the max memory too high can have an adverse effect on the server and all its running applications, as well as potentially cause Enterprise Manager not to start.

6.4.1 Modifying memory settings on an existing Enterprise Manager installation

To modify the maximum amount of memory, Enterprise Manager can use in an existing installation:

- 1. Open Dell Compellent Enterprise Manager Data Collector Manager.
- 2. Log on as a user with administrator rights.



- 3. Select **Service** from the menu on the left side of the window.
- 4. In **Application Settings**, set the maximum amount of memory that Enterprise Manager can use in MB based upon the amount of Storage Centers and volumes in the environment.

8		Data Collector Manager	x
DØLL сом	PELLENT ENTERPRISE MA	NAGER	Help Refresh
 General Information Service Network Security Directory Service SMTP Server Limits SMI-S Storage Centers FluidFS Clusters Users & User Groups Logs Debug Loggers 	Operating System Servic Type Domain User Name User Password Database Information Database Type Database Server Database Port Database Port Database Information Database JDBC Change Data Source Change Data Source Export Database Schema Export Historical Data Application Settings Max Application Memory (MB)	e Properties Local Service Account v SQL Server TSSRVKPEM01MSSQLSERVER 1433 Microsoft SQL Server → 11.00.3000 Microsoft JDBC Driver 4.0 for SQL Server → 4.0.2206.100 16384	Apply Changes
		× Cancel	🛧 ОК

- a. Values for this amount are as follows:
- 2048 (2 GB): Recommended for 1-2 Storage Centers or 1-500 total volumes
- 4096 (4 GB): Recommended for 3-5 Storage Centers or 501-1000 total volumes
- **8192** (8 GB): Recommended for 6-10 Storage Centers or 1001-2000 total volumes
- **16384** (16 GB): Recommended for 11+ Storage Centers or 2001-5000 total volumes
- **32768** (32 GB): Recommended for 11+ Storage Centers or 5000+ total volumes
- 5. Once the memory has been set, click **Apply Changes**. Enterprise Manager will then stop and restart with the new memory settings.



6.5 SQL database settings

SCOM requires a SQL database, and will create one during the installation. The size and destination of the database can be set, as shown in Figure 13.

onfiguration		
Configure the operational database		
Before you click \ensuremath{Next} , verify the database name, the instance name, and the port. En the database instance.	sure that you have suffi	icient permissions o
Server name and instance name:	SQL Server port:	
KP-SCOMTEST\MSSQLSERVER	1433	
Format: server name\instance name		
Database name:	Da <u>t</u> abase size (MB):	
OperationsManager	1000	
Data <u>f</u> ile folder:		
C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\		Browse
Log file folder:		
C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\		Browse

Figure 13 SCOM operational database setup

In most cases, the default database size of 1 GB is too small, especially in environments with multiple storage centers and a high number of volumes.

It should also be noted that by default, the SCOM operational database is not set to autogrow, regardless of what the SQL server defaults are set to.

Ū	Database	Propertie	es - Operation	nsManager			x
Select a page	🖾 Script 👻 🌇 Help						
Ites Itegroups Poptions Options Permissions Iterations Iterational Iterations	Database name: Qwner: I lise full text indexing		Operations	OperationsManager TECHSOL\kpiepho]	
	Database files: Logical Name MOM_DATA MOM_LOG	File Type Rows Log	Filegroup PRIMARY Not Applicable	Initial Size (MB) 1000 500	Autogrowth / I None None	Maxsize	
Connection							
Server: KP-SCOMTEST Connection: TECHSOL'kpiepho							
Progress							
O Ready	<	Ш		Add		<u>R</u> emove	>
					ОК	Canc	el

Figure 14 Operations Manager database properties

35



When the SCOM SQL database reaches its maximum size, SCOM no longer accepts and displays new data. In this case, error 10801 is displayed in the Operations Manager event log showing the following information:

Discovery data couldn't be inserted to the database. This could have happened because of one of the following reasons:

- Discovery data is stale. The discovery data is generated by an MP recently deleted.
- Database connectivity problems or database running out of space.
- Discovery data received is not valid.

Could not allocate space for object in database 'OperationsManager' because the 'PRIMARY' filegroup is full. Create disk space by deleting unneeded files, dropping objects in the filegroup, adding additional files to the filegroup, or setting autogrowth on for the existing files in the filegroup.

If this error occurs, the database size needs to be increased, or autogrowth needs to be turned on. Please refer to <u>Microsoft TechNet</u> for information on how to increase the size of a database.

For guidance with SQL Server database sizing for SCOM, please refer to the <u>Operations Manager 2012</u> <u>Sizing Helper Tool</u>.

6.5.1 Using SCOM to monitor SQL server

Because SCOM and SQL are so closely tied together, monitoring of both servers is essential in maintaining the health of the environment.

A SCOM monitoring agent can be installed on the SQL server used by SCOM. Keep in mind that the monitoring agent will only report on the health of the operating system, and does not have any direct hooks into SQL server.

Microsoft offers the System Center Management Pack for SQL Server which allows SCOM to monitor SQL databases, jobs, counters, and more. The SQL server management pack can be downloaded from the <u>Microsoft Download Center</u>.

6.6 Microsoft monitoring agent

Oftentimes, connection issues between the WMI Provider and SCOM servers can be resolved by simply restarting the Microsoft monitoring agent on the WMI Provider server.

To restart the Microsoft monitoring agent:

- 1. Log on with administrator credentials to the Windows 2012/R2 server that is running the WMI Provider.
- 2. Launch services by going to Start > Control Panel > Administrative Tools > Services.
- 3. Right-click on the Microsoft Monitoring Agent service and select Restart.
- 4. Verify the service restarted and is running.



Microsoft Monitoring Agent Properties (Local Compute					
General Log On	Recovery Dependencies				
Service name:	HealthService				
Display name:	Microsoft Monitoring Agent				
Description:	The Monitoring Agent service monitors the health of the computer. The service may be configured to				
Path to executable: "C:\Program Files\I	Path to executable: "C:\Program Files\Microsoft Monitoring Agent\Agent\HealthService.exe"				
Startup type:	Automatic 🗸				
Help me configure :	Help me configure service startup options.				
Service status:	Running				
Start	Stop Pause Resume				
You can specify the start parameters that apply when you start the service from here.					
Start parameters:					
OK Cancel Apply					

Note: If restarting the Microsoft monitoring agent on the WMI provider server does not alleviate the connection issues, the agent can also be restarted on the SCOM server. Be advised that restarting the agent on the SCOM server will stop all data collection within SCOM until the agent is running.



7 Conclusion

This document has provided administrators with answers to commonly asked questions associated with the Dell Compellent Storage Center Management Pack 3.0 for SCOM 2012/R2.

For more information, please refer to the documentation listed in "Additional resources" below.



A Additional resources

Support.dell.com is focused on meeting your needs with proven services and support.

DellTechCenter.com is an IT Community where you can connect with Dell Customers and Dell employees for the purpose of sharing knowledge, best practices, and information about Dell products and installations.

Referenced or recommended Dell Compellent publications on Dell TechCenter:

http://en.community.dell.com/techcenter/storage/w/wiki/5018.compellent-technical-content.aspx

- Dell Compellent Storage Center Users Guide
- Dell Compellent Storage Center Management Pack 3.0 for Microsoft SCOM Administrator's Guide
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Referenced or recommended Microsoft publications:

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- System Center 2012 R2 Operations Manager Survival Guide: <u>http://social.technet.microsoft.com/wiki/contents/articles/20796.system-center-2012-r2-operations-manager-survival-guide.aspx</u>
- System Center: Operations Manager Engineering Blog: <u>http://blogs.technet.com/b/momteam/</u>
- Best practices to use when you configure overrides in System Center Operations Manager: <u>http://support.microsoft.com/kb/943239/en-us</u>
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