

# **Dell Storage vRealize Operations Management Pack**

Version 1.4

Administrator's Guide

## Notes, cautions, and warnings

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

 **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.

# About This Guide

This document provides the purpose and audience of the Dell Storage vRealize Operations Management Pack Administrator's Guide and a list of related publications.

## Revision History

Document number 680-109-004

Revision	Date	Description
A	December 2020	Initial release

## Purpose

The *Dell Storage vRealize Operations Management Pack Administrator's Guide* provides instructions for installing and configuring the Dell Storage vRealize Operations Management Pack. It also describes the dashboards that are included with the Dell Storage vRealize Operations Management Pack and provides information on how to use these dashboards to analyze and troubleshoot the environment.

## Audience

The intended audience of this guide is information technology professionals who have intermediate to expert knowledge of Dell Storage Center and Dell Storage Manager. This guide assumes administrative working knowledge of the VMware vRealize Operations Manager.

## Related Dell Publications

In addition to this guide, see the following related publications for more information on related topics. All Dell documentation is available from [www.dell.com/support](http://www.dell.com/support).

*Dell Storage Manager Administrator's Guide* - Provides configuration and management instructions for Dell Storage Manager, which allows enterprise-level management of multiple Storage Centers, including setting up and monitoring replications and disaster recovery sites. In addition, Dell Storage Manager provides various system-generated performance reports and the ability to create custom reports.

## VMware Documentation

It is beyond the scope of this document to provide VMware conceptual information or detailed instructions for configuring the vRealize Operations Manager. See the VMware publications website: <https://www.vmware.com/support/pubs/vrealize-operations-manager-pubs.html>.

# Contents

About This Guide.....	3
<b>Chapter 1: Getting Started.....</b>	<b>5</b>
Introduction.....	5
Requirements.....	5
Installing and Configuring the Management Pack.....	5
Obtain the PAK File.....	5
Install the Dell Storage Management Pack.....	5
Update Installation.....	6
Add an Adapter Instance.....	7
Uninstalling the Management Pack.....	8
<b>Chapter 2: Working with Dashboards.....</b>	<b>9</b>
Viewing Dashboards.....	9
View Dell Storage & VMware Relationship.....	9
View Dell Storage Metrics.....	10
View Dell Storage Volume Top-N Reports.....	11
View Dell Storage at a Glance.....	12
View Dell Storage Port Top-N Reports.....	12
Modifying Dashboards and Widgets.....	13

# Getting Started

The Dell Storage vRealize Operations Management Pack is an embedded adapter that gathers topology, metrics, and alerts from Dell Storage Manager for display on dashboards in VMware vRealize Operations Manager. This guide refers to the embedded management pack as the Dell Storage Management Pack.

## Topics:

- [Introduction](#)
- [Requirements](#)
- [Installing and Configuring the Management Pack](#)
- [Uninstalling the Management Pack](#)

## Introduction

The Dell Storage Management Pack allows users to monitor and analyze the health and status of the network resources managed by Dell Storage Manager. The Dell Storage Management Pack pulls data from Storage Centers managed by Dell Storage Manager.

## Requirements

The following table lists the requirements for the Dell Storage Management Pack.

Product	Requirements
VMware vRealize Operations Manager	Version 8.0, 8.01, 8.1, and 8.2
Dell Storage Manager	Dell Storage Manager 2018 R1 and later

## Installing and Configuring the Management Pack

You install the Dell Storage Management Pack, and then add and configure the adapter instances. Each adapter instance represents a Dell Storage Manager Data Collector from which data is gathered and then displayed on the Dell Storage dashboards for further analysis.

## Obtain the PAK File

Dell provides a standard VMware PAK file for installing the Dell Storage Management Pack.

The file is named **DellStorageAdapter-01.04.00xx\_signed.pak**. This file is also available from VMware's Solution Exchange Portal.

Download this PAK file and save it to a location such as your computer desktop.

## Install the Dell Storage Management Pack

Before starting the installation process, make sure that you have downloaded the Dell PAK file to your local system.

1. Open a browser window to your vRealize Operations Manager in the following format:  
`https://IP`

Replace **IP** with the fully-qualified domain name (FQDN) or IP address of the vRealize Operations Manager.

2. When prompted, type the Administrator user name and password.  
The vRealize Operations Manager user interface opens.
3. In the vRealize Operations Manager, select **Administration>Solutions>Repository**.
4. On Repository page, scroll to the bottom of the page and click **Add/Upgrade**.
5. Click **Browse** to navigate to the location of the PAK file.
6. Select the DellStorageAdapter PAK file.

The screenshot shows the 'Add Solution' interface. On the left, a sidebar lists the steps: '1 Select Solution' (active), '2 End User License Agreement', and '3 Install'. The main panel is titled 'Select a Solution to Install'. It prompts the user to 'Browse your file system to select a PAK file for the solution you want to install.' A file named 'DellStorageAdapter-01.04.0003.pak' is selected, and a 'BROWSE...' button is visible. A green checkmark indicates the file is ready for upload. Below this, there are two unchecked checkboxes: 'Install the PAK file even if it is already installed.' and 'Reset Default Content, overwriting to a newer version provided by this update. User modifications to DEFAULT Alert Definitions, Symptoms, Recommendations, Policy Definitions, Views, Dashboards, Widgets and Reports will be overwritten. If you are installing a product software update, clone or backup the content before you proceed.' An 'UPLOAD' button and a 0% progress bar are at the bottom of the main panel. 'CANCEL' and 'NEXT' buttons are in the bottom right corner.

**Figure 1. Add Solutions Page**

7. Click **Upload**.  
**NOTE:** The upload might take several minutes.  
A confirmation page indicates that the PAK file was uploaded.
8. Click **Next** to continue.  
The **Dell End User License Agreement** (EULA) page appears.
9. To accept the terms of the agreement, select the checkbox, then click **Next**.  
The update procedure begins. The installation could take several minutes to complete.
10. Click **Finish**.  
The Dell Storage vRealize Management Pack is listed in the **Solutions** table.

## Update Installation

Dell Storage vRealize Operations Management Pack version 1.4 does not have an update option. To update from version 1.3 to version 1.4 follow these instructions.

1. Update vRealize Operations Manager from version 7.5 to 8.0.
2. Uninstall Dell Storage vRealize Operations Management Pack version 1.3 as described in [Uninstalling the Management Pack](#).

3. Install Dell Storage vRealize Operations Management Pack version 1.4 as described in [Install the Dell Storage Management Pack](#).
4. Add the Dell Storage Manager adapter as described in [Add an Adapter Instance](#).

## Add an Adapter Instance

Add an adapter instance by providing the hostname or IP address of the Data Collector and the login credentials of an Admin user on the Data Collector.

An adapter instance is required for each Data Collector being monitored.

1. In a browser, open the vRealize Operations Manager user interface.
2. Log in as an administrator.
3. Click **Administration>Solutions>Other Accounts> Add Account**.
4. Select Dell Storage vRealize Operations Management Pack.  
The **Adapter Settings** dialog box opens.

The 'New Account' dialog box is titled 'New Account' and contains the following sections and fields:

- Cloud Account Information**
  - Name:** A text field with the placeholder 'Add account name'.
  - Description:** A text area with the placeholder 'Add a short description for this account'.
- Connect Information**
  - Enterprise Manager Address:** A text field with the placeholder '<Host name or IP address>'.
  - Port:** A text field with the value '3033' and a dropdown arrow.
  - Auto Discovery:** A dropdown menu with the value 'true'.
  - Credential:** A dropdown menu with the value '--Select--', a close icon (x), and a plus icon (+) with a pencil icon (edit).
  - Collector / Group:** A dropdown menu with the value 'Default collector group'.
- Buttons:** A 'VALIDATE CONNECTION' button, an 'ADD' button, and a 'CANCEL' button.

**Figure 2. Adapter Settings for Dell Storage Adapter**

5. In the **Name** field, type a name for the adapter instance.
6. (Optional) Type a description for the adapter instance.
7. Type the hostname or IP address of the Data Collector.
8. (Optional) Type the port number of the Data Collector.
9. To use Auto Discovery, keep the Auto Discovery value set to **true**.
10. To add login credentials, click the plus sign (+) next to the **Credential** drop-down menu.  
The **Manage Credentials** dialog box opens.

The 'Manage Credential' dialog box is titled 'Manage Credential' and contains the following fields:

- Credential name:** A text field with the value 'DSM Credentials'.
- User Name:** A text field with the value 'Admin' and a red label '(DSM Username)'.
- Password:** A text field with the value '\*\*\*\*\*' and a red label '(DSM Password)'.
- vRops User Name:** A text field with the value 'Admin' and a red label '(vRops Appliance Username)'.
- vRops Password:** A text field with the value '\*\*\*\*\*' and a red label '(vRops Appliance Password)'.
- Buttons:** A 'CANCEL' button and an 'OK' button.

**Figure 3. Manage Credential Dialog Box**

11. Specify login credentials for both the Admin user on the Data Collector and the vROPs appliance:

- a. **User Name/Password** — enter the login credentials of an Admin user on the Data Collector.
  - b. **vROPS User Name/Password** — enter the login credentials of the vROPs appliance.
12. Click **OK**.
  13. Click **Validate Connection** to validate that the settings are correct.
  14. Click **Add**.

## Uninstalling the Management Pack

Follow these steps to uninstall the Dell Storage Management Pack.

1. In the vRealize Operations Manager, select **Administration>Solutions>Repository>Dell Storage Adapter**.
2. On the adapter page, scroll to the bottom of the page and click **UNINSTALL**.

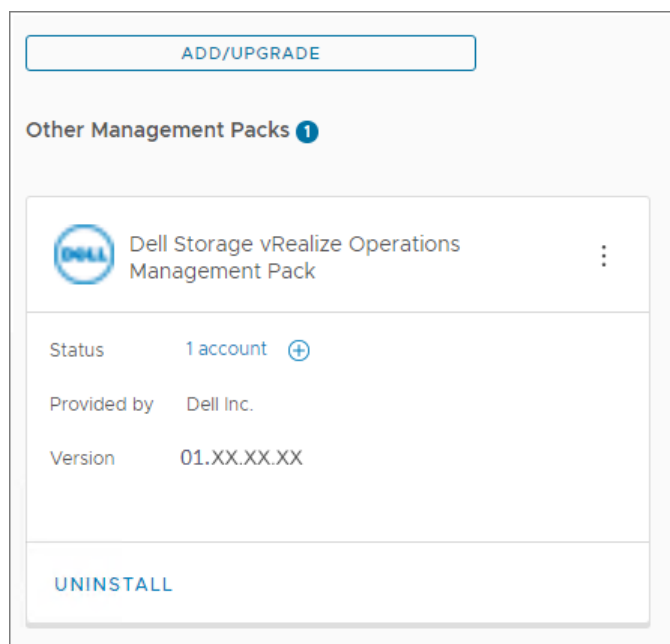


Figure 4. Dell Storage Adapter Page

3. A Warning page is displayed.

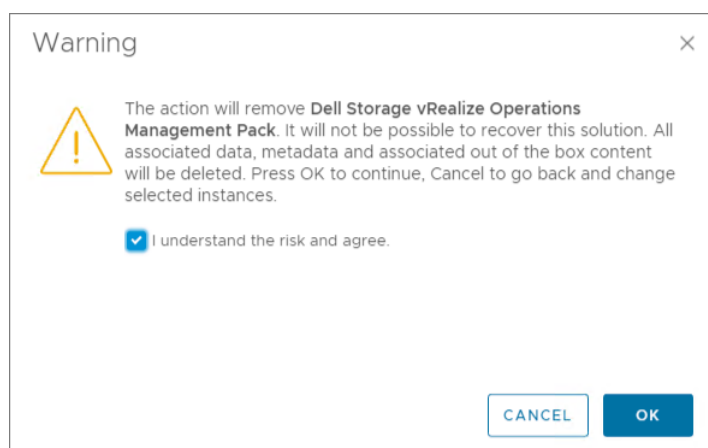


Figure 5. Uninstallation Warning

4. Read the message and select **I understand the risk and agree**.
5. Click **OK**.  
The uninstall process finishes and the package is removed.



# Working with Dashboards

Several dashboards are prepackaged with the Dell Storage Management Pack. The Dell Storage dashboards provide a starting point for monitoring and analyzing your environment. The dashboards are fully configurable and can be modified to better represent your environment.

## Topics:

- [Viewing Dashboards](#)
- [Modifying Dashboards and Widgets](#)

## Viewing Dashboards

The Dell Storage dashboards are accessed from the **Dashboards** menu of the vRealize Operations Manager user interface. To select and view a Dell Storage dashboard, use the following procedure:

1. Open the vRealize Operations Manager user interface in a browser window.
2. Log in to the vRealize Operations Manager with Administrator credentials.  
The vRealize Operations Manager user interface opens.
3. Click **Home** > **Dashboard List**.
4. Select from the list of available dashboards.

The Dell Storage Management Pack provides the following dashboards:

- Dell Storage & VMware Relationship
- Dell Storage Metrics
- Dell Storage Volume Top-N Reports
- Dell Storage at A Glance
- Dell Storage Port Top-N Reports

## View Dell Storage & VMware Relationship

This dashboard provides a visual representation of the relationship between VMware and Dell Storage resources.

Select a resource from the **Dell Storage & VMware Relationship View** to view its Object Relationship Health Tree, Sparkline Chart, Alerts, and Metric Chart.

The following figure shows an example of the dashboard.

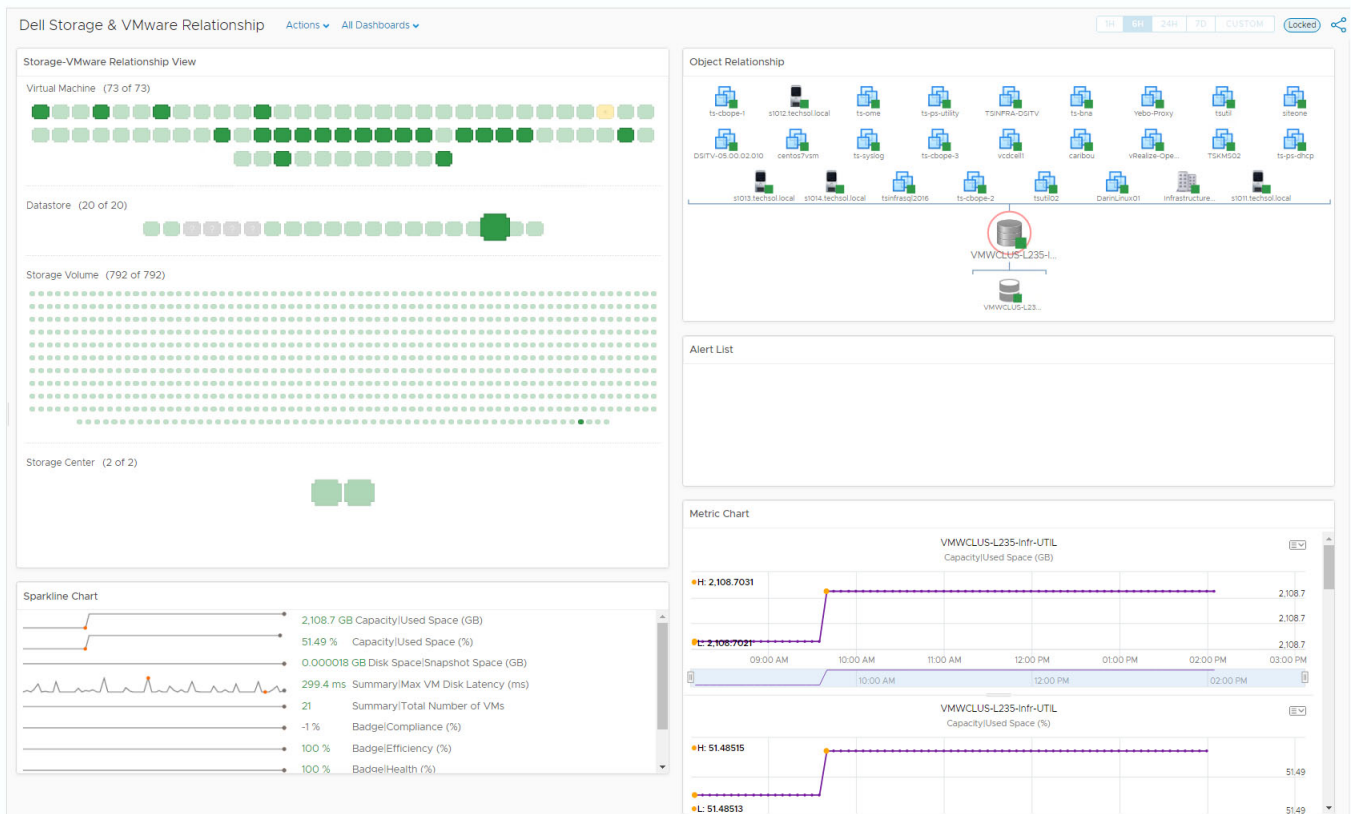


Figure 6. Sample Dell Storage & VMware Relationship Dashboard

## View Dell Storage Metrics

This dashboard displays the health status and metrics for the selected Storage Center.

1. Select a resource for the Storage Center from the **Select Resource to View Metrics** widget.
2. Select a metric to graph for the resource from the **Select Metrics to Graph** widget.
3. Select the graph type from the **Metric Graph** widget.

The following figure shows an example of a Dell Storage Metrics dashboard.

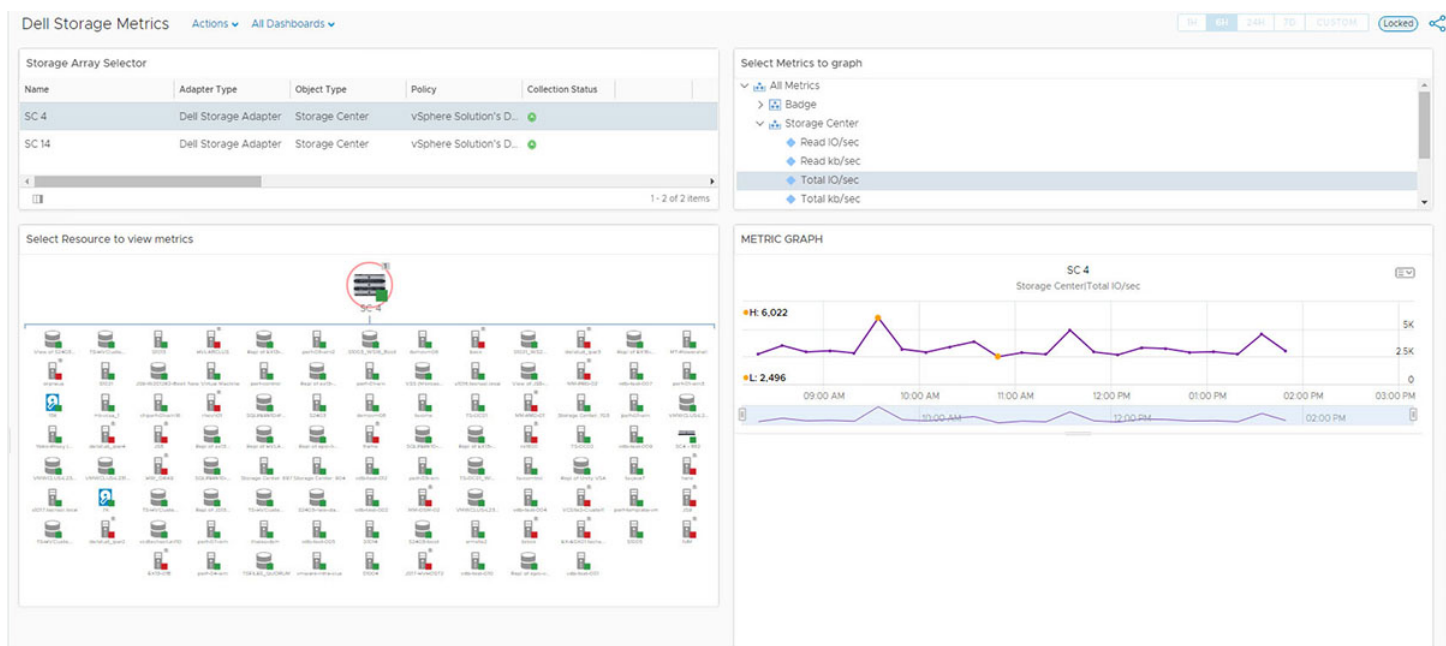


Figure 7. Sample Dell Storage Metrics Dashboard

## View Dell Storage Volume Top-N Reports

This dashboard lists the top 25 volumes for the following categories:

- Dell Storage Volume Total IO/sec (24h)
- Dell Storage Volume Total KB/sec (24h)
- Dell Storage Volume Read IO/sec (24h)
- Dell Storage Volume Write IO/sec (24h)
- Dell Storage Volume Replay Space
- Dell Storage Volume Capacity

The following figure shows an example of a Dell Storage Volume Top-N Reports dashboard.

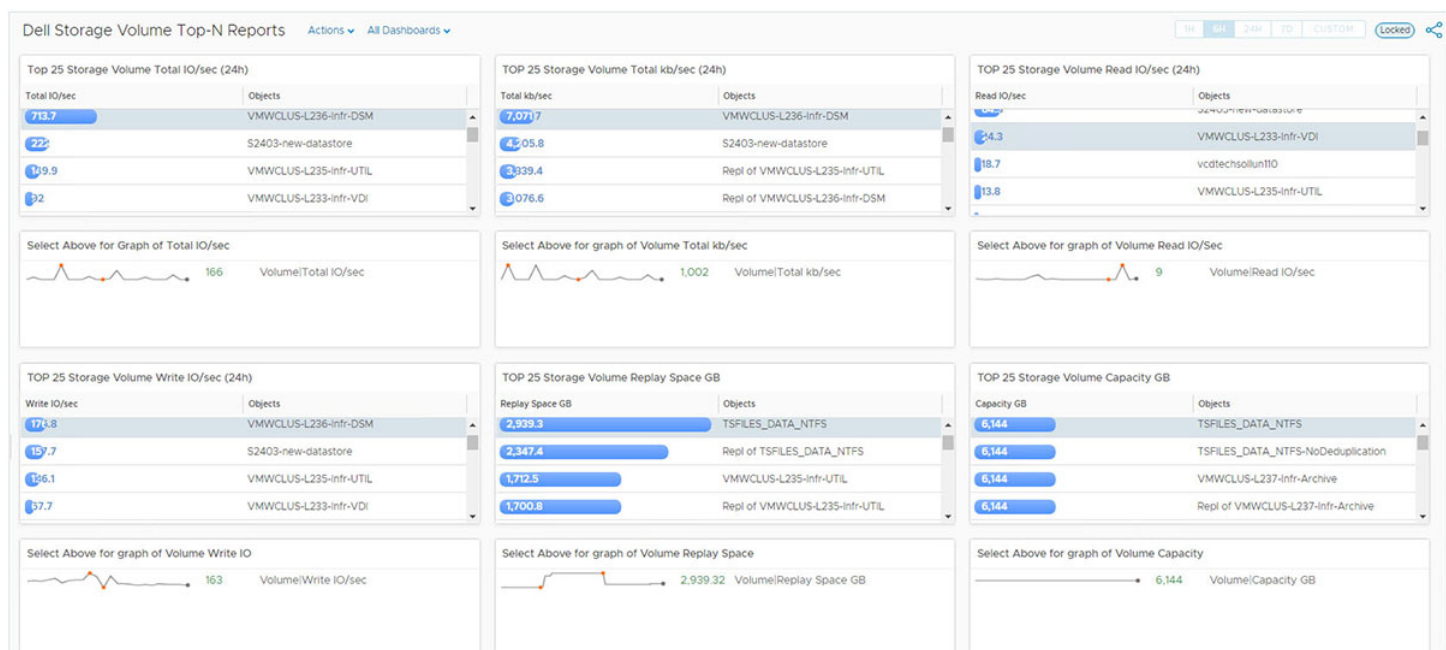


Figure 8. Sample Dell Storage Volume Top-N Reports Dashboard

## View Graph of Metric

Click a row on any widget to view a graph of the metric.

## Modify Period Length

Except for the **Replay Space** and **Volume Capacity** widgets, each widget lists the top 25 volumes for the last 24-hour period. Edit the widget to adjust the duration.

1. Click **Edit Widget**.  
The **Edit Top-N Analysis Widget** dialog box appears.
2. Select the new time period from the **Period Length** drop-down menu.
3. Click **OK**.

Alternatively, to analyze the top volumes for different durations, clone the dashboard and then adjust the **Period Length** for each widget on the new dashboard.

## View Dell Storage at a Glance

This dashboard displays the health status, storage array controllers, disk tiers, and alerts for the selected Storage Center.

1. Select the Storage Center from the Storage Array Selector.  
The **Selected Storage Array Health Tree** widget is updated to show the topology and health badges of the Storage Center resources.
2. Click a resource on the **Selected Storage Array Health Tree** widget to view its metrics in the **Metric Sparklines - Select From Health Tree** widget.

The following figure shows an example of a Dell Storage at a Glance dashboard.

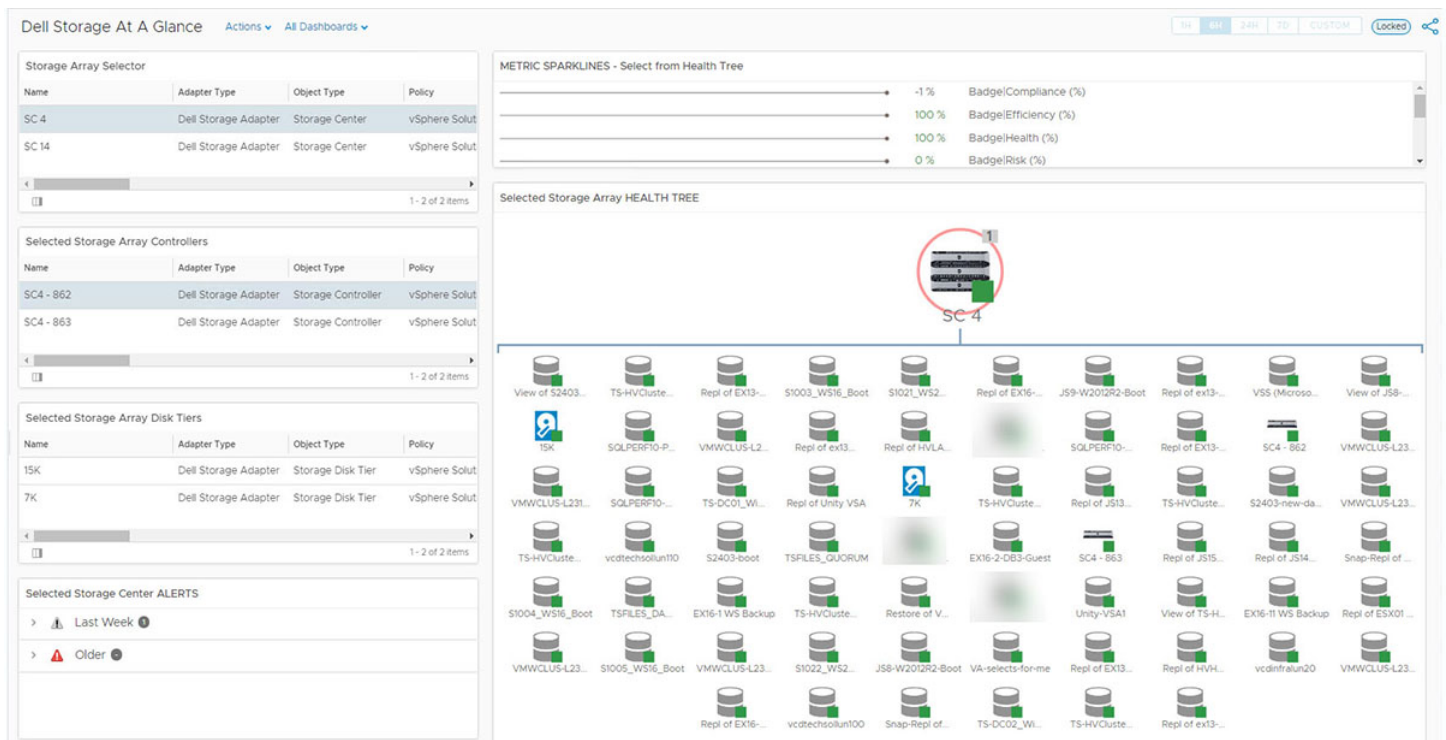


Figure 9. Sample Dell Storage at a Glance Dashboard

## View Dell Storage Port Top-N Reports

This dashboard lists the top 25 ports for the following categories:

- Storage Front End Total IO/Sec (24h)

- Storage Front End Total kb/Sec (24h)
- Storage Front End Port Write IO/Sec (24h)
- Storage Front End Port Read IO/Sec (24h)
- Storage Front End Port Write Latency IO/Sec (24h)
- Storage Front End Port Read Latency (24h)

The following figure shows an example of a Dell Storage Port Top-N Reports dashboard.

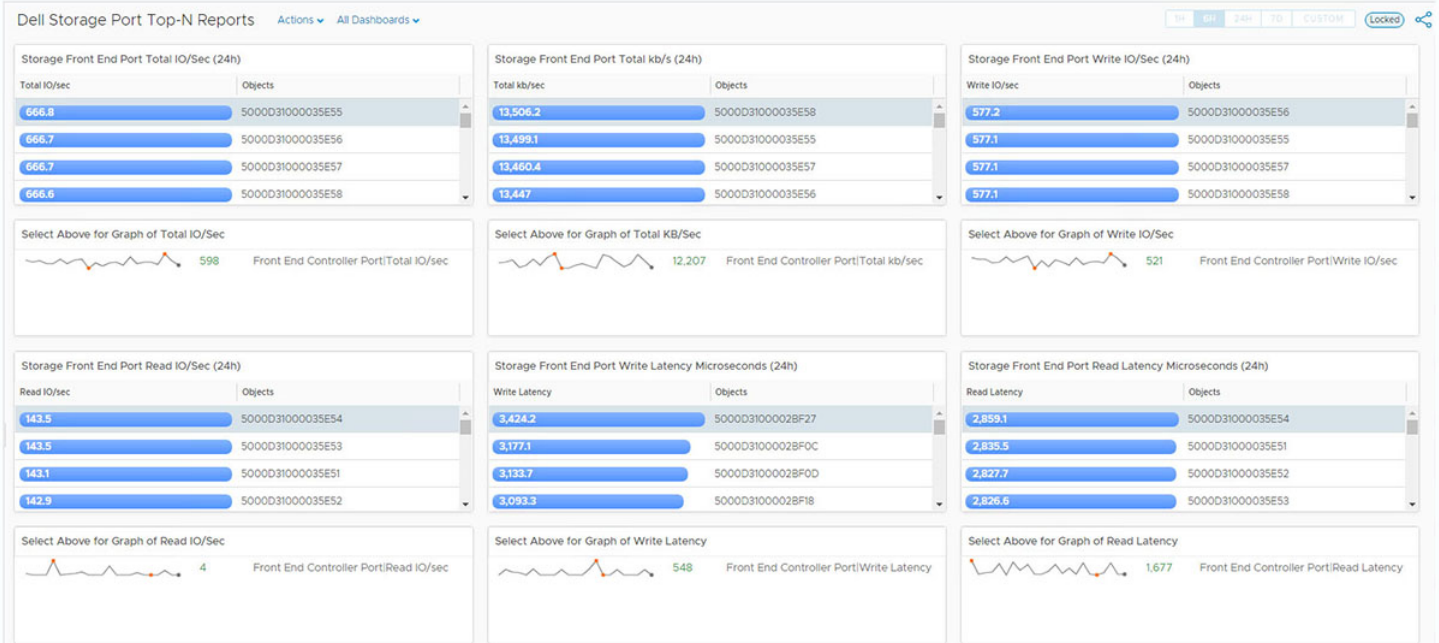


Figure 10. Sample Dell Storage Port Top-N Reports Dashboard

## View Graph of Metric

Click a row on any widget to view a graph of the metric.

## Modify Period Length

The length of time is configurable by editing the widget and selecting a new time value.

1. Click **Edit Widget**.  
The **Edit Top-N Analysis Widget** dialog box appears.
2. Select the new time period from the **Period Length** drop-down menu.
3. Click **OK**.

Alternatively, to analyze the top volumes for different durations, clone the dashboard and then adjust the **Period Length** for each widget on the new dashboard.

## Modifying Dashboards and Widgets

See the VMware vRealize Operations Manager documentation for detailed information on working with dashboards and widgets:

<https://www.vmware.com/support/pubs/vrealize-operations-manager-pubs.html>