Monitoring Dell Chassis Health, Events and Alarms Information Using the Dell OpenManage Integration for VMware vCenter

The technical white paper describes the procedure of monitoring Dell chassis health information, events, and alarms from the VMware vCenter Web Client using the OpenManage Integration for VMware vCenter.

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Revisions

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Executive Summary

This white paper provides you information about virtualizing management tasks by surfacing hardware inventory and health information in the single pane of glass. You can get important information using the VMware vSphere Web Client without logging in to the chassis management controller (CMC). This integration also creates a new set of alerts which are registered with the VMware vCenter.
1 Introduction

The white paper provides information about monitoring a chassis by Dell OpenManage Integration for VMware vCenter. You will get information about viewing the overall chassis and the individual components health, configuring and viewing events and alarm.
Objective
Using this whitepaper you will get a better understanding about the chassis health information, associated events and alarms about the discovered chassis.
3 Prerequisites

The OpenManage Integration for VMware vCenter is designed to display chassis information within the VMware vSphere Web client only. Chassis information is not available within the VMware vSphere Desktop client. Chassis information is available for Dell 10th generation or later blade servers and is designed for the Dell M1000e and Dell VRTX blade chassis. The OpenManage Integration for VMware vCenter version 2.1 or later should be installed and configured as specified in the OpenManage Integration for VMware vCenter User’s Guide.

If you want to view information about a chassis and its health in the VMware web client, the chassis must first be discovered and inventoried. The following are the required configurationally prerequisites to monitor the chassis from the web client:

1. Discovery of the chassis by the OpenManage Integration for VMware vCenter
2. Adding the discovered chassis to a Chassis Profile
3. Inventory of the chassis

For more information on Chassis discovery and inventory, refer to the Chassis inventory white paper on the Dell Support Site.
4 Chassis Health

The Dell OpenManage Integration for VMware vCenter, version 2.1 or later presents information about the chassis to the VMware vSphere web client.

After inventorying a chassis, additional information about the chassis is displayed in the Dell Chassis object list, and the chassis information pages are now populated with the valid information. This includes the overall and individual component health of the Chassis.

To view this information in vSphere web client, click **vCenter** link from the Home page, and select **Dell Chassis** link in the left side pane. Click a chassis displayed in the tree structure.

4.1 Chassis Summary Page

If you click once or double-click on a chassis, the chassis information page for the selected chassis is displayed. The **Summary** page contains an overview of health, licensing, and warranty information, followed by a list of any active errors. After that additional information about chassis health and the health of each component of chassis are displayed.

4.2 Chassis Overall Health

The Chassis health is displayed on the top of the **Summary** page. It shows the overall health of the chassis and the worst case of health of the Chassis components.

![Chassis overall health](image)

**Figure 1** Chassis overall health

4.3 Chassis Individual Component Health

Detailed health report is displayed for the following Chassis components:

- Main Board
- KVM
- Blower
- Storage
- I/O Cable
- DVD
- Switch
- Fan
- Server
- FPC Cable
- CMC
- Power Supply

Only the components that are present in the chassis are listed for individual health component. For example, if no KVM modules are present in a chassis that will not be listed.

Each Chassis component can have its health as *Normal or Warning or else Critical*.

The figure shows how the individual Chassis component health would be displayed. The last column, depicted by a slash on a gray background lists components are not installed. For example, the chassis supports 6 switches, but only 2 are installed. Therefore, 4 are listed as “Not Present.”

![Chassis Individual Component Health](image)

**Figure 2**  Chassis Individual Component Health
Further expansion of an individual component object gives more details about the individual component.

![Chassis Health Table]

**Figure 3** Expanded view for a particular component
For M1000e having CMC firmware version 4.3 and earlier versions, the health status is shown as **Normal** (healthy) or **Warning** or else **Critical** (Not OK). It is recommended to have CMC firmware version 4.4 and later to get more accurate information about the chassis health.

Refer to Chassis *(M1000e/VRTX)* User Guide to understand more about the procedure of determining the health status of an individual component of chassis.

![Figure 4](image)

**Figure 4** Health status for M1000e having CMC firmware version less than 4.4

Health status for M1000e having CMC firmware version less than 4.4

Chassis health status is displayed on the bottom right corner of the **Summary** page:

- **Normal** (Healthy)
- **Warning** or **Critical** (Not Ok)
- **Not Present**
4.4 Active Errors

The active errors provide more information about current health of the components and the reason for improper component health. Chassis summary page has an option to launch CMC web console of a Chassis for further investigation. Active Errors can be exported to CSV file for further reference or action. Active errors information is only available for M1000e chassis with firmware version 4.4 or later and VRTX chassis.

4.5 Dell Host Health Summary Port let

Status information about the Dell chassis health is now displayed for the associated hosts. The host Summary page has a Dell Host Health port let that displays the Chassis Global Status.
5 Chassis Events and Alarms

The Dell OpenManage Integration for VMware vCenter, version 2.1 or later presents information about the chassis events. Alarms (if enabled) are triggered for all warning and critical events related to a chassis.

For Chassis events to be displayed in vCenter console, the IP address of OpenManage Integration for VMware vCenter appliance has to be set as Alert Destination at CMC Trap Settings. This is configured automatically during chassis inventory. If there are no free slots available to set the trap destination in CMC, an error message is displayed at the chassis inventory task. In such case, you must manually configure the alert destination in CMC console, or clear at least one trap destination slot in CMC console and run the chassis inventory using the vCenter console.

Chassis Events referred in this document are the events which are received by the CMC (Chassis Management Console) of the Chassis, not by any other Chassis components.

5.1 Configuring Chassis Events

The configuration for Host Events and Alarms are also applicable for chassis alerts.

To configure Chassis Events in the OpenManage Integration for VMware vCenter, navigate to Manage and click Settings.

On the right hand side of Events and Alarms page, click Edit. From there, you can select the Event Posting Level, Enable Alarms for all Dell Hosts and Chassis or restore default alarms.

You can configure events and alarms for each vCenter or at a stress for all registered vCenter instances.

Under Event Posting Level, select one of the following:

- **Do not post any events** - The options blocks hardware events.
- **Post All Events** - The option posts all hardware events.
- **Post only Critical and Warning Events** - The option posts only critical or warning level hardware events.
- **Post only Virtualization-Related Critical and Warning Events** - The option posts only virtualization-related critical and warning events. This is the default event posting level.

Alarms must be enabled to use of Dell Hosts and Chassis Alarms.

If you need to restore the default alarm settings, you can do so with the Reset Default Alarm button. The button helps to restore the default alarm configuration without uninstalling and reinstalling the product. If any Dell alarm configurations have been customized since install, those changes are reverted using this option.
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Settings made at OpenManage Integration for VMware vCenter Administrator regarding 'Maximum numbers of Alerts', 'Number of days to retain alerts' and 'Timeout for duplicate alerts' are applicable both for Chassis and Host Events.

![Events and Alarms settings pane in Web client](image)

5.2 Chassis Events View

Chassis Events and corresponding Alarms are shown at vCenter Level. It is shown both in the vSphere web client and classic desktop vSphere client.

To view the Events for Chassis in the web client, select vCenter in left pane and then select a specific vCenter and click Monitor. From here, select Events. Alternatively, from the Home tab of the web client, click on Event Console under Monitoring section.

Chassis events details include Message, Chassis Name, Location and Chassis IP.
In an environment that contains multiple vCenter instances sharing common SSO (Single Sign-on), the chassis events are shown in the event console of all vCenters; depending upon the event posting level set for each vCenter.

For Example, if there are 2 vCenter instances sharing the same SSO, and the event posting level is set to ‘Post all Events’ in vCenter-1 and ‘Do not post any Events’ in vCenter-2, then the Chassis events will be posted only under vCenter-1 event console.

![Chassis Events shown in the vSphere web client](image)

**Figure 10**  Chassis Events shown in the vSphere web client

### 5.3 Chassis Alarms View and Configuration

Alarms are triggered when a warning or critical event is received from Chassis. There are no actions defined to any Chassis related alarms by default. However, actions for a specific alarm can be configured manually based on the requirement. To view the alarms, select the specific vCenter, navigate to Monitor, click **Issues** and select **Triggered Alarms**.

In an environment that contains multiple vCenter instances sharing common SSO, the chassis alarms are shown in all vCenters, depending on alarms settings for each vCenter.
Figure 11  Dell Chassis Alarms
To view all the existing Dell Alarms for Chassis and to configure custom actions for them, in left pane, select vCenter, select a specific vCenter, navigate to Manage, and then select the Alarm Definition tab.

Example of actions that can be associated to alarms: Send a notification mail, Run a command and so on.

Figure 12  Dell Chassis Alarms list page
To set a custom action to any chassis alarm, select the particular alarm and click on **Edit** button. Go to **Actions** page, and set the **Action**.

![Figure 13 Setting custom actions to Dell Chassis alarms](image)

**Figure 13** Setting custom actions to Dell Chassis alarms
6 Conclusion

The Dell OpenManage Integration for VMware vCenter, version 2.1 or later, presents information about the chassis to the VMware vSphere web client. By configuring a chassis profile, you can view health status, chassis events and corresponding alarms for their associated chassis, and monitor the Chassis from within the VMware vCenter, without logging in to the CMC web console.