Managing Dell Blade and Chassis Using Dell OpenManage Essentials

This white paper explains how to manage multiple Dell chassis and blades remotely using Dell OpenManage Essentials.

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Executive Summary

This document explains how to manage multiple Dell blades (modular servers) and chassis using Dell OpenManage Essentials.

Dell OpenManage Essentials makes management of Dell modular devices easier by providing a single view of Dell Chassis Management Controller (CMC), and its blades.

What is Dell OpenManage Essentials?

Dell OpenManage Essentials is a light-weight, web-based, one-to-many system management application that provides a comprehensive view of all Dell systems, devices, and components within the enterprise’s network or datacenter.

- To download OpenManage Essentials, visit http://www.delltechcenter.com/OME
- For OpenManage Essentials Installation Guide, see Installing Dell OpenManage Essentials

Scope of the document

This document describes the management of Dell CMC, blades and its switches from a single console using Dell OpenManage Essentials.

This includes:

- Discovery and inventory of Dell CMC, blades, and switches.
- Health monitoring, application launch, and reception of alerts.
- Updating CMC firmware.
- CMC reports.

What is Dell modular chassis?

- The Dell PowerEdge modular blade chassis is a centralized device used to host and manage multiple blades in a single enclosure for provisioning of power, cooling, management, and other functions.
- Dell CMC is a systems management hardware and software solution for managing Dell modular servers, much like the iDRAC for Dell servers except that CMC provides an interface to manage all modular servers (blades) and its components, present in the chassis.
- The CMC is a hot-pluggable module that provides a secure web browser based interface, remote management capabilities, crashed system recovery, and power control functions.
- For more information about Dell modular chassis and blades, see http://www.dell.com/downloads/global/power/ps3q05-20050163-Brundridge-OE.pdf
- For more information about Dell Chassis Management Controller, see
  - CMC for PowerEdge M1000e - The M1000e is Dell’s foundation for a blade server solution. It provides the infrastructure (industry-leading power & cooling, networking...
and blade manageability) for companies who choose to deploy blade-based server solutions

- **CMC for PowerEdge VRTX** - The newly announced Dell PowerEdge VRTX is a revolutionary, easy-to-manage, remote and office-optimized platform that converges servers, storage and networking into a compact package. It can hold up to 4 server nodes, up to 48 TB of integrated, shared storage, and network switching.

### Dell CMC, blade, switch, and storage discovery

Managing multiple CMCs, servers, switches and storage devices can be challenging for any IT Administrator. Dell provides a solution with Dell OpenManage Essentials, which has a single console to view and manage multiple devices on the enterprise’s network or datacenter. Management tasks from Dell OpenManage Essentials include retrieving inventory details, receiving SNMP alerts, monitoring health, updating firmware, and more.

To manage CMC, blades, switches, and storage from OpenManage Essentials, they should be discovered using their applicable protocols.

- SNMP is the only supported protocol for managing CMC in a PowerEdge M1000e chassis.
- WS-Man protocol is recommended for managing CMCs in a PowerEdge VRTX chassis and iDRACs.

To manage CMCs, iDRACs, DRACs, blades, switches, and storage devices, the following prerequisites must be met:

- SNMP must be enabled and configured for a PowerEdge M1000e CMC.
- WS-Man configuration is not required for PowerEdge VRTX CMCs.
  - CMC’s web console credentials are used for WS-Man Configuration in the OpenManage Essentials Discovery Range wizard.
  - A user can login to the web console using a user account; however, an account with administrator privileges is required to perform system updates.
- All blade servers must have the relevant protocol enabled.
  - The protocol to be used is dependent on the operating system of the server.
    - Windows - SNMP or WMI
    - Linux - SNMP or SSH
    - ESXi - WS-Man
- Blade servers can be discovered and managed by the server’s hostname/IP address, or by the hostname/IP address of the blade’s DRAC/iDRAC (out-of-band management or OOB).
  - DNS is required to manage devices by hostname.
  - SNMP must be enabled and configured for modular switches.
- For more information about protocol configuration, refer to the online help in OpenManage Essentials.
Discovering CMC, Blades, Switches, and Storage

To discover a CMC, DRAC/MC, blade, switch, or storage device:

1. Launch OpenManage Essentials.
2. From the Manage → Discovery and Inventory menu, select Add Discovery Range.
3. Enter the IP address / range, or Hostname for a CMC, blade, switch, etc (Figure 1).
4. Click Add.

Figure 1. Discovery range configuration

5. Click Next.
6. On the ICMP Configuration screen, click Next to accept the default values or change the ping time-out and ping re-tries values accordingly to the available bandwidth between the OpenManage Essentials management system and the managed node.
7. On the SNMP Configuration screen (Figure 2), enter the Get community string, which should be the same as the community string configured for the particular device.
   - Multiple community strings can be used by using a comma (,) as a separator.
8. The Timeout and Retries values for SNMP can also be configured.

Figure 2. SNMP configuration
9. Click **Next** to step through the wizard to the various protocol configuration pages or select the menu on the left to go directly to a specific protocol configuration page.

10. In the WS-Man configuration page (Figure 3):
   - Select the ‘Enable WS-Man Discovery’ check box to enter credentials.
   - Select the ‘Secure Mode’ check box to use secure port (443).
     - Skip Common name check - ignores if the certificate name does not match the hostname.
     - Trusted Site - automatically assumes the certificate is trusted without checking.
     - Certificate File - browse for certificate file when Trust Site option is not selected.

11. Select **Summary** from the left side menu to view the Discovery Range Configuration details or click **Finish** to start the discovery process.

![Figure 3. WS-Man configuration](image)

**Managing Dell modular chassis from OpenManage Essentials**

**Viewing modular chassis components from OpenManage Essentials**

Once the discovery of CMC, DRAC/MC, modular blades, modular switches and modular storage is complete, users can view device details and manage these devices using OpenManage Essentials. Discovered modular chassis (along with CMC, blades, switches and storage) is categorized under Modular Systems.

- With introduction of the PowerEdge VRTX chassis, the Modular Systems device group has been updated in OpenManage Essentials to show PowerEdge M1000e and PowerEdge VRTX chassis and its associated devices (i.e., Modular servers, switches, and storage - only for M1000e), as shown in Figure 4.
A sub-group is created under PowerEdge M1000e and PowerEdge VRTX device groups, when a CMC is discovered using the applicable protocol. Discovered CMCs are displayed in the root of PowerEdge M1000e or PowerEdge VRTX sub-groups and all associated devices (servers, switches, and storage devices) are displayed under their respective nodes within the sub-group.

The sub-groups created under PowerEdge M1000e or VRTX groups are named accordingly to the device name followed by “_Chassis”.

If a device associated to a chassis is discovered prior to the discovery of the CMC device itself, then the device will be seen under the root of Modular Systems device group, until the associated CMC is discovered and categorized properly under PowerEdge M1000e or VRTX sub-groups.

The right-hand side grid details shown in Figure 3 can be exported in following formats:

- CSV
- HTML
- XML
- Text

To export the required data, right-click the grid and select Export.

Inventory

Inventory details of CMC, DRAC/MC, blades, and switches can be viewed by selecting the corresponding node in the tree as shown in Figure 5.

CMC and DRAC/MC inventory also includes the slot information. Keep in mind that slot information is available only if CMC firmware version is higher than 4.0 for PowerEdge M1000e. PowerEdge VRTX does not have a minimum CMC firmware version requirement at this time.
For more information about discovery and inventory, see Understanding Discovery and Inventory of Dell Devices.

Alerts

Dell OpenManage Essentials receives SNMP alerts for events occurring with CMC, DRAC/MC, modular blades, and modular switches. You can view the alerts by selecting a node and clicking the Alerts tab as seen in Figure 5.

SNMP trap destination needs to be configured on the managed device in order for OpenManage Essentials to receive alerts from the managed nodes.

Monitoring

Health status of the CMC, DRAC/MC, blades, and switches is shown at the device node in the device tree and also in the Device Summary and Software Agent Information table of each device as seen in Figure 5.

Application Launch

Application Launch opens the web console of the CMCs, switches, blade servers, OMSA, RACs, etc. from the right-click menu of the device in the device tree. This provides users the ability to configure a device or view more details about the current health state by using the application launch shortcut to the web console of the device directly from OpenManage Essentials.

To launch a remote console, select the device from the device tree or from the right-hand side grid instance of the device and select the Application Launch option. The hyperlink in the Software Agent Information table can also be used to launch the remote console.
Application Launch also provides an option to view and renew the warranty information. This option connects to the Dell Support site to view the device warranty and renew if necessary. Internet access is required for the warranty feature to work properly. Proxy settings may need to be configured in the Preferences page.

For more information about using the CMC console, watch this video.

**Updating CMC firmware from OpenManage Essentials**

Dell OpenManage Essentials can be used to update the firmware of all the managed Dell CMC devices to the latest version released by Dell.

The following prerequisites have to be met in order to update the CMC:

- The CMC has been discovered and inventoried using the applicable protocol.
  - PowerEdge M1000e - SNMP
  - PowerEdge VRTX - WS-Man
- The latest catalog.cab has been imported from:
  - Dell FTP ([ftp.dell.com](ftp.dell.com))
  - SUU DVD
  - Repository Manager

Dell OpenManage Essentials has a single view where all the devices and their respective updatable components are displayed. **System Update** has two panes as shown in Figure 6. The top pane lists all the devices that can be updated. On selection of the device, the list of components which can be updated is displayed in the lower pane. CMC and its firmware details are listed with all other updateable devices present in the chassis.

![Dell OpenManage Essentials System Update](image)
1. From the Manage menu, select System Update from.
2. Click Select a Catalog Source to import the catalog.cab file.
3. Devices requiring updates are listed under the Non-Compliant Systems tab.
4. Devices which are up-to-date and do not have any components requiring updates will be listed under the Complaint Systems tab.
5. Devices which need resolution to determine if components can be updated will be listed under the Issues And Resolution For Updates tab, along with the Reason and Recommendation to resolve the issue.
6. To update components, select the devices from the top pane, then select the components in the lower pane, then click Apply Selected Updates button.
7. Provide the upgrade task details when prompted and click Finish to run the system update task.

View Modular Enclosure Information report

Detailed information like Enclosure Model Type, Slot Number, Slot Name, Slot availability, Firmware version, and other details of CMC can be viewed in OpenManage Essentials as shown in Figure 7.

1. Select Reports from the main menu on the top.
2. From the left-side menu, select “Modular Enclosure Information”
3. Modular Enclosure Information report is seen on the right side.

Figure 7. Modular Enclosure Information report
Summary
Dell OpenManage Essentials provides the following features to manage CMC, blades, and switches:

- Discovery and inventory.
- Classification.
- Health and connection state monitoring.
- Reception and management of device alerts.
- Application launch from within OpenManage Essentials.
- Firmware update of multiple CMC and blade servers.
- Modular Enclosure Information report.
- CMC inventory details
  - Device Summary
  - Software Agent Information
  - NIC Information
  - Firmware Information
  - Power Supply Information
  - Contact Information
  - Blades Enclosure Slot Information
- Additional inventory details for PowerEdge VRTX CMC
  - Controller Information
  - Physical Disk Information
  - Virtual Disk Information
  - Software Inventory Information
  - PCIe Slot Information
  - License Information
  - Virtual Adapter Information
  - Virtual Disk Access Policy Information

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