Dell OpenManage Systems Management Overview Guide
Version 11.0

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.

Contents

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Dell Systems Management

Dell delivers management solutions that help IT Administrators effectively deploy, update, monitor, and manage IT assets. Dell OpenManage solutions and tools allow customers to quickly respond to problems by helping them to manage Dell servers effectively and efficiently; in physical, virtual, local, and remote environments, operating in-band and out-of-band (agent-free). The OpenManage portfolio includes innovative embedded management tools such as the integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller.

Dell has developed comprehensive systems management solutions based on open standards and has integrated with management consoles that can perform advanced management of Dell hardware. Dell has connected or integrated the advanced management capabilities of Dell hardware into offerings from the industry's top systems management vendors, thus making Dell platforms easy to deploy, update, monitor, and manage IT environments.

If you have standardized on offerings from industry leaders such as BMC Software, Microsoft, VMware, or other vendors, you can extend the existing systems management framework and the skills of the IT staff to efficiently manage Dell servers, storage, business-client PCs, and networking equipments using Dell's Systems Management tools, utilities, and consoles.

Dell's systems management solution consists of a set of software products that help you to discover, monitor, manage, update, and deploy software or firmware on Dell servers. The products focus on:

· Reducing complexity and saving time

  – Eliminating need for additional utilities
  – Eliminating tasks that increase time
· Achieving efficiency and controlling costs

  – Improving asset management
  – Optimizing resource utilization
· Empowering productivity by connecting to major systems management consoles and protecting investments

  – Providing features in tools that customers choose, thus adapting to customers' mode of operation
  – Automating to reduce downtime and human error

These software products are useful for administrators to control and manage Dell servers, storage, network, and client devices from a single workstation.

This document provides a list of Dell Systems Management offerings using the Dell OpenManage Suite of products and the Dell OpenManage Connections. The document provides overviews for different products and a feature matrix that helps you choose the appropriate set of integrations and connections to manage your Dell systems.

Dell Systems Management Offerings

Dell's suite of Systems Management offerings extend a wide variety of tools, products, and services. Dell's strategy is to use an existing systems management framework that you may be currently using.

However, if you do not have a framework, Dell provides in-house tools or tools from our partners. Dell also offers professional services to install or train on any of the Dell products and tools along with other services to manage your environment. All the

solutions are centered on Dell's PowerEdge server hardware management featuring iDRAC with Lifecycle Controller. For an interactive tool to see the best Dell OpenManage tools for your datacenter environment, see online *Dell OpenManage Advisor Tool*. This tool covers a wide range of topics regarding your datacenter, and provides a detailed output based on your information. The following figure shows the Dell systems management offerings that are used in the Advisor Tool.
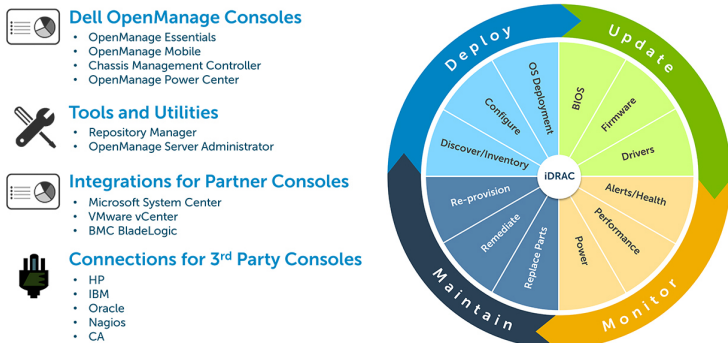
Figure 1. Dell Systems Management Offerings

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Dell Hardware Management Tools

- Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller (LC)
- Dell Chassis Management Controller (CMC) for blade servers
- iDRAC Service Module (iSM)
- Remote Access Controller Administration (RACADM) CLI
- Embedded Management APIs: Redfish, WS-MAN, IPMI, SNMP

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Dell Consoles

- Dell OpenManage Essentials (OME)
- Dell OpenManage Power Center (OMPC)
- Dell Active System Manager (ASM)

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Dell Mobile Applications

- Dell OpenManage Mobile (OMM)

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Dell Update Utilities

- Dell Repository Manager (DRM)
- Dell Update Packages (DUP)
- Dell OpenManage Server Update Utility (SUU)
- Dell OpenManage Linux Repository

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Integration With Third Party Consoles

- Dell Server Deployment Pack for Microsoft System Center Configuration Manager

- Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (SCVMM)
- Dell Server Management Pack Suite for Microsoft System Center Operations Manager
- Dell Lifecycle Controller Integration for Microsoft System Center Virtual Machine Manager
- Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager
- Dell OpenManage Integration for VMware vCenter
- BMC Software
- iDRAC with BMC Software BladeLogic Server Automation (BSA)
- OpenManage Server Administrator with BMC ProactiveNet Performance Management Suite.

Connections For Third-Party Consoles

- CA Technologies

  – Dell OpenManage Connection for CA Network and Systems Management (CA NSM)

  – CA Spectrum and CA Unified Infrastructure Management (Native Integration)
- Hewlett Packard Enterprise (HPE)

  – Dell Smart Plug-in (SPI) for HP Operations Manager (HPOM) for Windows
- IBM

  – Dell OpenManage Connection for IBM Tivoli Enterprise Console

  – Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus (ITNO)

  – Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition
- Oracle

  – Dell OpenManage Plug-in for Oracle Enterprise Manager (OEM)
- Nagios

  – Dell OpenManage Plug-in for Nagios Core

  – Dell OpenManage Plug-in for Nagios XI

Dell TechCenter

For additional information about white papers, videos, blogs, forums, technical material, tools, usage examples, and other information, visit the OpenManage page at **delltechcenter.com/OpenManage** or the following product pages on **Dell TechCenter**:

- For general information on Systems Management Products, see **delltechcenter.com/systems-management**.
- For Integrated Dell Remote Access Controller (iDRAC) page, see **delltechcenter.com/idrac**.
- For Dell Lifecycle Controller (LC) page, see **delltechcenter.com/lc**.
- For Dell OpenManage Essentials (OME) page, see **delltechcenter.com/ome**.
- For Dell OpenManage Mobile (OMM) page, see **delltechcenter.com/omm**.
- For Dell OpenManage Integration for VMware vCenter (OMIVV), see **delltechcenter.com/omivv**.
- For Dell Repository Manager (DRM) page, see **delltechcenter.com/repositorymanager**.
- For Dell Chassis Management Controller (CMC) page, see **delltechcenter.com/cmc**.
- For Dell OpenManage Connections for Partner Consoles page, see **en.community.dell.com/techcenter/systems-management/w/wiki/4105.dell-openmanage-connections-for-partner-consoles**.
- For Dell OpenManage Power Center page, see **en.community.dell.com/techcenter/power-cooling/w/wiki/3534.dell-openmanage-power-center**.
- For OpenManage Server Administrator page, see **delltechcenter.com/omsa**.
- For iDRAC Service Module (iSM) page, see **en.community.dell.com/techcenter/systems-management/w/wiki/11434.idrac-service-module**.

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **Dell.com/support.**
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.

Accessing documents from the support site

You can access the required documents in one of the following ways:

- Using the following links:

  - For all Enterprise Systems Management documents — **Dell.com/SoftwareSecurityManuals**
  - For OpenManage documents — **Dell.com/OpenManageManuals**
  - For Remote Enterprise Systems Management documents — **Dell.com/esmmanuals**
  - For iDRAC and Lifecycle Controller documents — **Dell.com/idracmanuals**
  - For OpenManage Connections Enterprise Systems Management documents — **Dell.com/ OMConnectionsEnterpriseSystemsManagement**
  - For Serviceability Tools documents — **Dell.com/ServiceabilityTools**
  - For Client Command Suite Systems Management documents — **Dell.com/DellClientCommandSuiteManuals**

- From the Support site:

  a. Go to **Dell.com/Support/Home**.

  b. Under **Select a product** section, click **Software & Security**.

  c. In the **Software & Security** group box, click the required link from the following:
  - **Enterprise Systems Management**
  - **Remote Enterprise Systems Management**
  - **Serviceability Tools**
  - **Dell Client Command Suite**
  - **Connections Client Systems Management**

  d. To view a document, click the required product version.

- Using search engines:

  - Type the name and version of the document in the search box.

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Systems Management Product Overview

This section provides an overview for the Dell Systems Management suite of products.

Dell Hardware Management Tools

Integrated Dell Remote Access Controller With Lifecycle Controller

The Integrated Dell Remote Access Controller (iDRAC) is designed to enhance the productivity of server administrators and improve the overall availability of Dell servers. iDRAC alerts administrators about the server problems, enabling remote server management, and reducing the need for an administrator to physically visit the server.

iDRAC with Lifecycle Controller allows administrators to deploy, update, monitor and manage Dell servers from any location without the use of agents in a one-to-one or one-to-many method. This out-of-band management allows the updates to be sent from Dell or appropriate third-party consoles directly to iDRAC with Lifecycle Controller on a Dell PowerEdge server, regardless of the operating system that may or may not be running.

iDRAC shares Lifecycle Controller features such as firmware update, backup and restore, lifecycle log, and hardware inventory export. For complete information, see the iDRAC with Lifecycle Controller documents at **dell.com/idracmanuals**.

Dell Chassis Management Controller for Servers

The Dell Chassis Management Controller is an embedded systems management hardware and software solution for managing multiple servers, IO modules, and shared power or cooling using either the Web interface or the command line interface.

The CMC leverages the iDRAC with Lifecycle Controller technology to update BIOS or component firmware and configure BIOS settings in a one-to-many operation.

CMC is available for the following chassis:

- Dell PowerEdge M1000e — This chassis is Dell's first blade server solution. It provides the infrastructure (industry-leading power and cooling, networking, and blade manageability) for companies who choose to deploy blade-based server solutions. A single Chassis Management Controller interface with multi-chassis management capability can manage and see up to nine chassis, 288 servers, 54 power supplies, and 81 fans with no additional cabling. The chassis has slots for two, redundant CMC modules, so that administrators can connect to the chassis even if one Chassis Management Controller module is not working.
- Dell PowerEdge VRTX — The chassis is a revolutionary, easy-to-manage, remote and office-optimized platform that converge servers, storage and networking into a compact package. One of the key features is that it provides *shared storage across multiple server nodes* and the on-board RAID controller. It can hold up to four server nodes, up to 48 TB of integrated, shared storage, and network switching. The Dell PowerEdge VRTX offers the ability to use PCIe slots that no other blade server solution provides. By combining the density of blade servers with the flexibility of rack server I/O options with PowerEdge VRTX, Dell gives you the flexibility to use less expensive PCIe cards while still being managed through shared chassis management.
- Dell PowerEdge FX2/FX2s — The FX2 enclosure allows servers and storage to share power, cooling, management and networking. It includes redundant power supply units (1100W, 1600W, and 2000W) and eight cooling fans. With a compact highly flexible design, the FX2 chassis lets you simply and efficiently add resources to your infrastructure when and where you need them, so you can let demand and budget determine your level of investment. The FX2 enclosure also offers I/O modules to

several I/O aggregators that can simplify cabling, improve East/West trafffic within the server, and enable LAN/ SAN convergence — reducing cost and complexity.

For additional information on CMC, see **www.dell.com/esmmanuals** or **www.delltechcenter.com/CMC**.

iDRAC Service Module

This module complements iDRAC with monitoring and configuration information from the operating system. iSM has limited interface of its own on OS. You can enable/disable features on iSM by the iDRAC interfaces to control the CPU and memory consumed on the server's operating system.

The iDRAC Service Module provides the following features:

- View operating system (OS) information.
- Replicate Lifecycle Controller logs to operating system logs.
- Perform automatic system recovery options.
- Populate Windows Management Instrumentation (WMI) information.
- Integrate with SupportAssist Collection.
- Enable Prepare to Remove option on a NVMe class PCIe SSD.
- Access iDRAC interfaces using host IP.
- Use Remote iDRAC hard reset for 13th generation of PowerEdge servers.
- Access iDRAC MIB compatible SNMP traps from the host operating system.

For more information, see the *iDRAC User's Guide* available at **dell.com/idracmanuals**.

Dell Remote Access Controller Administration (RACADM) CLI

The RACADM command-line utility provides a scriptable interface to perform inventory, configuration, update, and health status check of PowerEdge servers. RACADM operates in multiple modes:

- Local — supports running RACADM commands from the managed server's operating system.
- SSH or Telnet — known as Firmware RACADM, is accessible by logging in to iDRAC using SSH or Telnet
- Remote — supports running RACADM commands from a remote management station such as a laptop or desktop.

RACADM is supported by the iDRAC with Lifecycle Controller and by the Chassis Management Controller of the M1000e, VRTX and FX2 modular systems. Local and Remote RACADM is supported on Windows Server, Windows clients, and on Red Hat, SuSe and Ubuntu Linux.

For complete information, see the *RACADM Command Line Reference Guide for iDRAC and CMC* available at **dell.com/support/ manuals**.

iDRAC with Lifecycle Controller Embedded Management APIs

iDRAC with Lifecycle Controller provides a range of standards-based applications programming interfaces (APIs) that enable scalable, automated management of PowerEdge servers. Standard systems management APIs have been developed by organizations such as the Institute of Electrical and Electronics Engineers (IEEE) and Distributed Management Task Force (DMTF) and are widely used by commercial systems management products and by custom programs and scripts developed by IT staff to automate management functions such as discovery, inventory, health status checking, configuration, update, and power management. The APIs supported by iDRAC with Lifecycle Controller include:

- **Redfish**: In 2015, the DMTF Scalable Platforms Management Forum published Redfish, an open industry-standard specification and schema designed to meet the needs of IT administrators for simple, modern, and secure management of scalable platform

hardware. Dell is a key contributor to the Redfish standard, acting as co-chair of the SPMF, promoting the benefits of Redfish, and working to deliver those benefits within Dell industry-leading systems management solutions. Redfish is a next generation management standard using a data model representation inside a hypermedia RESTful interface. The data model is defined in terms of a standard, machine-readable schema, with the payload of the messages expressed in JSON and the protocol using OData v4.

- **WS-Man**: The Web Services For Management (WS-Man) API, first published by the DMTF in 2008, is the most mature and robust API provided by iDRAC with Lifecycle Controller. WSMAN uses a Simple Object Access Protocol (SOAP) with data modeled using the Common Information Model. WS-Man provides interoperability between management applications and managed resources, and identifies a core set of web service specifications and usage requirements that expose a common set of operations central to all systems management.

- **IPMI**: The Intelligent Platform Management Interface (IPMI) was created in 1998 by an industry group led by Intel including Cisco, Dell, Hewlett-Packard, NEC Corporation, SuperMicro and Tyan. Currently the most widely used API for server management, IPMI is a message-based, hardware-level interface specification that can operate over both LAN and serial interfaces. IPMI is supported broadly by server vendors, systems management solutions and open source software.

- **SNMP**: The Simple Network Management Protocol (SNMP) was created by the IEEE in 1990 to standardize the management of network devices. With the advent of X86 servers in the early 1990's, SNMP emerged as the first standardized API for server management, allowing commercial management consoles created for monitoring network switches and routers to also monitor X86 severs. SNMP is primarily used to deliver event messages to alert administrators of problems on their systems but can also be used to discover, inventory and configure servers.

To assist automating system management tasks and simplify API integration, Dell provides PowerShell and Python libraries and script examples utilizing the WS-Man interface. In addition, the Dell Techcenter website iDRAC with Lifecycle Controller pages offer a library of technical white papers detailing the use of the embedded management APIs. For more information, see **www.delltechcenter.com/iDRAC**and **www.delltechcenter.com/LC**.

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Dell Consoles

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Dell OpenManage Essentials

Dell OpenManage Essentials is the one-to-many management console for monitoring Dell HW infrastructure including server, storage and networking, as well as for lifecycle management of Dell PowerEdge servers. OME provides a simple and easy interface for system administrators to maximize the uptime and health of Dell systems. It helps to:

- Monitor health status and events for Dell PowerEdge servers, EqualLogic or MD series storage, and Dell PowerConnect and Force 10 switches.

- Provide hardware-level control and management for Dell PowerEdge server, blade system, and internal storage arrays.

- Support Windows, Linux, VMware, and HyperV environments.

- Link and Launch element management interfaces, such as, iDRAC, CMC, EQL group manager etc

- Integrate with the following Dell solutions:

  - Dell Repository Manager — Builds customized server update baselines that OpenManage Essentials can use.

  - OpenManage Power Center — Optimize power consumption in the servers.

  - Dell SupportAssist – Enables automatic hardware failure notification to be sent securely to Dell technical support for intelligent analysis and diagnosis to optimize availability and reduce manual intervention. This solution is available as part of Dell ProSupport and ProSupport Plus at no additional cost.

- Provide REST interface API support for 3rd Party Integration.

- Manage Server Configuration, it is a fee-based license available on Dell's 12th and 13th generation of PowerEdge servers with iDRAC Enterprise or iDRAC Express licenses. The key features include the following:

  - Configure a server or chassis using a template and deploying an operating system on the 12th or 13th generation of Dell PowerEdge bare metal servers.

  - Detect and notify automatically the PowerEdge server or chassis drift from a customer-defined baseline configuration during a server operation.

  - Boot a system from a network-mounted ISO using iDRAC.

- – Replicate of FN-IOM and M-IOA configurations within M1000e chassis.
- – Support VLAN Management for FN-IOM and M-IOA.

For complete information, see **delltechcenter.com/OME**.

Dell Mobile Applications

Dell OpenManage Mobile

Dell OpenManage Mobile is a software application that enables easy, convenient, and secure monitoring and management of Dell PowerEdge servers remotely, or at-the-server. With OpenManage Mobile, IT Administrators are able to securely perform several data center monitoring and remediation tasks using an Android or iOS mobile device at any time, from anywhere. The OpenManage Mobile app is available as a free software download on both the Apple Store and the Google Play Store.

It can also monitor and manage Dell PowerEdge servers through a Dell OpenManage Essentials console or by directly accessing the server's embedded management, iDRAC with Lifecycle Controller.

The OpenManage Essentials console can be accessed through OpenManage Mobile over a secure IP network. This allows you to monitor all devices managed by OpenManage Essentials such as Dell servers, storage, networking, Firewall, and supported third party devices.

There are two methods available to access iDRAC through OpenManage Mobile. If you are remote, you can access iDRAC over a secure IP network. If you are at-the-server, an iDRAC can be accessed directly by tapping an NFC-enabled android mobile device on a Dell PowerEdge "Quick Sync" bezel to perform several basic bare-metal configuration tasks such as assigning an IP address, and changing server credentials or the boot order. The Quick Sync bezel is available on Dell PowerEdge R630, R730, and R730XD server.

Key Features of OpenManage Mobile:

- Connect to multiple OpenManage Essentials installed servers from a single mobile device.
- Connect to multiple 12th and 13th generation servers individually through the iDRAC interface.
- Receive critical alert notification on your mobile device as they arrive into your OpenManage Essentials management console.
- Acknowledge, forward, and delete alerts from your mobile device.
- Browse through device details, firmware inventory, and event logs of individual systems.
- Perform several server management functions such as power-on, power cycle, reboot, and shutdown from the mobile application.

Dell OpenManage Power Center

Dell OpenManage Power Center is a one-to-many application that can read power usage information from Dell servers, Power Distribution Units (PDU), and Uninterruptible Power Supplies (UPS). It can aggregate this information into rack, row, and room-level views. Also, for servers with the iDRAC Enterprise version, you can cap or throttle the amount of power consumed. This is done in response to a need to reduce consumption due to external events such as brownout and failure of data center cooling devices. Capping can also be used to safely increase the number of servers in a rack to match the power that has been provisioned to that rack.

For complete information, see *Dell OpenManage Power Center User's Guide* available at **dell.com/openmanagemanuals**.

Dell Active System Manager

The Active System Manager is a comprehensive infrastructure and workload automation solution for use by IT administrators and teams. It simplifies and automates the management of heterogeneous environments, enabling IT to respond more rapidly to dynamic business needs. The Active System Manager features an enhanced user interface that provides an intuitive, end-to-end infrastructure and workload automation experience through a unified console.

For more information, see **dell.com/asm**.

Dell Update Utilities

The following table lists the update utilities and the supported operating systems.

Table 1. Dell Update Utilities

Product	Windows	Linux
Dell Repository Manager	Yes	-
NOTE: Dell Repository Manager can create Windows or Linux-based update tools and it can run on Windows Virtual Machines.		
Dell Update Packages	Yes	Yes
Dell OpenManage Server Update Utility	Yes	Yes
Dell OpenManage Linux Repository	-	Yes

Dell Repository Manager

Dell Repository Manager (DRM) is an application that helps you to:

- Identify the updates that are relevant to the systems in your data center
- Identify and notify when the new updates are available
- Package the updates into different deployment formats.

DRM provides advanced integration capabilities with iDRAC/LC, Dell OpenManage Essentials, Dell Chassis Management Controller, Dell OpenManage Integration for VMware vCenter and DLCI for SCVMM to automate the creation of baseline repositories. Also, DRM packages updates into custom catalogs that can be used for deploying.

Dell Repository Manager can create the following deployment tools:

- Custom Catalogs
- Lightweight deployment pack
- Bootable Linux ISO
- Custom Server Update Utility (SUU)

For complete information, see *Dell Repository Manager User's Guide* available at **dell.com/support/manuals**.

Dell Update Packages

Dell Update Package (DUP) is a self-contained executable in Microsoft Windows or Linux format that updates a component on a server and applications like OMSA, iSM and DSET.

DUPs can be executed in GUI or in CLI mode.

For complete information, see *Dell Update Package User's Guide* available at **dell.com/openmanagemanuals**.

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Dell OpenManage Server Update Utility

Dell Server Update Utility (SUU) is an application that contains a collection of updates, inventory collector and update applicator. When you run SUU on a target system, it determines which updates are appropriate and apply the ones that are applicable.

SUU can be downloaded from **support.dell.com** or a custom SUU can be created using Dell Repository Manager (DRM). The SUU available on **support.dell.com** includes all the updates for all currently supported PowerEdge platforms. With DRM you can create a custom SUU with only the updates for systems in your data center.

For complete information, see *Dell Server Update Utility User's Guide* available at **dell.com/support/manuals**.

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Dell OpenManage Linux Repository

The Dell OpenManage Linux Repository (DLR) provides updates in RPM format. Dell System Update (DSU) is a Linux CLI optimized tool for identifying and applying the appropriate Linux updates.

You can run DSU directly on the target system with a highly customizable script or it can be packaged together with a Bootable ISO to provide a customizable out-of-band update tool.

For more information, see **http://linux.dell.com/repo/hardware/**.

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Integration With Third-Party Consoles

The Dell plug-ins are:

- Dell Server Management Pack Suite for Microsoft System Center Operations Manager
- Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager
- Dell Server Deployment Pack for Microsoft System Center Configuration Manager
- Dell Lifecycle Controller Integration for System Center Virtual Machine Manager
- Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (Hyper-V)
- Dell OpenManage Integration for VMware vCenter
- BMC Software

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Dell Server Management Pack Suite for Microsoft System Center Operations Manager

Dell Server Management Pack offers both in-band and agent-free options that enable System Center Operations Manager to discover, monitor, and accurately depict the status of the following systems on a defined network segment.

- PowerEdge servers
- Converged platforms
- integrated Dell Remote Access Controllers (iDRAC)
- Chassis Management Controllers (CMC)

For complete information, see *Microsoft System Center Operations Manager Server Management Pack User's Guide* available at **dell.com/support/manuals**.

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Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager

Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager provides agent-free, operating system and agnostic hypervisor configuration, deployment of BIOS, and firmware updates for 11th, 12th and 13th generation of PowerEdge

servers. Automated processes reduce the steps, time, and cost in configuring Dell servers from a bare-metal state and also preparing remote one-to-many operating system deployments within multivendor operating system and hypervisor environments.

For complete information, see *Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager User's Guide* available at **dell.com/support/manuals**.

Dell Server Deployment Pack for Microsoft System Center Configuration Manager

Dell Server Deployment Pack uses OpenManage Deployment Toolkit (DTK) and PxE-based OS deployment to automate bare-metal configuration and deployment of various Microsoft operating systems on PowerEdge servers across your network.

For more information, see *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide* available at **dell.com/support/manuals**.

Dell Lifecycle Controller Integration for System Center Virtual Machine Manager

Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Virtual Machine Manager helps to automate and simplify hardware configuration, and deploy operating systems (OS) that are supported on 11th generation, 12th generation, and 13th generation of Dell PowerEdge servers.

The following are the advantages of using DLCI for SCVMM:

- Reduces amount of time and effort required for one-to-many OS deployments.
- Offers agent-free and out-of-band hardware configuration, patching and deployment through the System Center Virtual Machine Manager console, by using Dell's embedded server management technology, integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller (LC).

By using DLCI for SCVMM, you can do the following:

- Installing the product without configuring DCLM (Dell Connections License Manager) for license key enforcement. Customers should purchase the licenses as proof of compliance.
- Using the Update Centre for a simplified, and enhanced user experience to achieve multistep work flow in a single window.
- Automatic grouping of rack and modular servers into virtual groups based on cluster, chassis, hosts, and unassigned server groups at discovery phase.
- Managing hosts by synchronizing SCVMM hosts with DLCI for SCVMM appliance.
- Providing credentials for integrated Dell Remote Access Controller (iDRAC), Chassis Management Controller (CMC), and Proxy servers that are used for multiple workflows.
- Accessing Microsoft System Center Virtual Machine Manager.
- Installing as a Virtual Appliance (software model) for a simplified implementation and initial configuration with SCVMM.
- Checking the Dell PowerEdge server compliance to ensure that the required firmware revision is installed.
- Performing auto-discovery and handshake to enable iDRAC with LC on bare-metal servers. This helps to locate the SCVMM console through the DLCI for SCVMM appliance.
- Discovering unassigned Dell PowerEdge servers manually while using static IP for the iDRAC with LC network.
- Viewing key inventory details of discovered servers, which helps IT Administrators to select appropriate servers to deploy in the datacenter.
- Preparing an ideal server configuration, also known as a Golden Configuration, based on the IT Administrator defined standards to enable rapid and consistent replication of the same configuration on servers targeted for deployment into the virtual environment.
- Enabling IT Administrators in developing and maintaining policy and profile-based configuration templates to reduce repetitive management tasks and time consumption.
- Deploying OS and hypervisor by using the following options:

  – iDRAC with LC, which contains driver packs for all supported operating systems for OS deployments.
  – Prepare customized Microsoft Windows Pre-installation Environment (WinPE) images with OS drivers optionally available from the Dell Deployment Toolkit (DTK).

- Replicate hypervisor deployments with or without utilizing the LC driver packs based on the selected Golden Configuration and also replicate BIOS, RAID, and Boot Order settings.
- Installing server operating systems remotely.
- Viewing the inventory information and performing troubleshooting tasks by launching to the iDRAC and LC user interface.
- Viewing data logs of jobs and tasks performed within the DLCI appliance.
- Using Active Directory credentials for authentication and access to iDRAC/LC.

For complete information, see *Dell Lifecycle Controller Integration for Microsoft System Center Virtual Machine Manager User's Guide* available at **dell.com/support/manuals**.

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Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager

Dell Server PRO Management Pack integrates PowerEdge server knowledge on temperature, memory, and power supplies with Microsoft System Center Virtual Machine Manager (SCVMM) and Operations Manager (SCOM) to efficiently manage Dell physical servers that host virtual workloads running on Microsoft Hyper-V. Remedial actions can be quickly implemented if a system is compromised.

For complete information, see *Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager User's Guide* available at **dell.com/support/manuals**.

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OpenManage Integration for VMware vCenter

The Dell OpenManage Integration for VMware vCenter allows IT administrators to monitor, provision, and manage Dell PowerEdge server hardware and firmware. It is done through a dedicated Dell menu accessed directly through the VMware vCenter console. OMIVV also allows granular control and reporting for the hardware environment using the same role-based access control model as vCenter. The OpenManage Management Pack for vRealize Operations Manager is available with OMIVV v4.0 onwards. This helps in checking hardware health and alerting into vRealize operations, which also includes dashboard and reporting on the PowerEdge environment.

> NOTE: The Dell Repository Manager integrates with OpenManage Integration for VMware vCenter. The Dell Repository Manager provides advanced functionality, simplifies the discovery, and deployment of new updates.

You can manage and monitor Dell hardware within the virtualized environment, such as:

- Alerting and monitoring environment for servers and chassis
- Monitoring and reporting for servers and chassis
- Updating firmware on servers
- Deploying enhanced options

For complete information, see **delltechcenter.com/omivv.**

GUID-8E7A8447-E647-4B34-B1A0-A710AEB9979C
BMC Software

Dell along with BMC Software integrates Dell server, Dell storage, and Dell network management functionality with the BMC Software's process and datacenter automation products. Dell and BMC Software's partnership helps to make sure that Dell and BMC Software–based IT infrastructure and services provide the highest level of datacenter and business services manageability. The integration between Dell and BMC Software products are highlighted by Dell's own IT organization, as BMC Software helps Dell IT automate key processes and accelerate responsiveness by deploying multiple BMC Software solutions.

Connections For Third Party Systems Management Consoles

The following table lists the connections products and the management station operating systems they are supported on.

Table 2. Connections For Third Party Consoles

Vendor	Product	Dell OpenManage Connection for Third-Party console	Windows	Linux	ESXi
CA Technologies	Network and System Management (NSM)	Dell OpenManage Connection for CA NSM	Yes	-	-
Hewlett Packard Enterprise (HPE)	Operations Manager (OM) for Windows	Dell OpenManage Smart Plug-in (SPI) for HPE Operations Manager for Windows 📝 **NOTE: Use Dell Connections License Manager for managing licenses and licensable features available with Smart Plug-in.**	Yes	-	Yes
IBM	Tivoli Enterprise Console (TEC)	Dell OpenManage Connection for IBM Tivoli Enterprise Console	Yes	-	-
	Tivoli Netcool / OMNIbus	Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus (ITNO)	Yes	Yes	Yes
	Tivoli Network Manager IP Edition	Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition 📝 **NOTE: Use Dell Connections License Manager for managing licenses and licensable features available with Dell OpenManage Connection for ITNM IP Edition.**	Yes	Yes	Yes
Oracle	Enterprise Manager	Dell OpenManage Plug-in for Oracle Enterprise Manager (OEM)	Yes	Yes	Yes
Nagios	Nagios-Core	Dell OpenManage Plug-in for Nagios Core	-	Yes	Yes
	Nagios-XI	Dell OpenManage Plug-in for Nagios XI	-	Yes	Yes

Dell OpenManage Connection for CA Network and Systems Management

The Dell OpenManage Connection for CA Network and Systems Management (NSM) provides integrated monitoring of Dell PowerEdge servers and PowerVault storage arrays. It helps in real-time health and alert monitoring, from within CA NSM console.

For complete information, see *Dell OpenManage Connection for CA NSM User's Guide* available at **dell.com/support/manuals**.

Dell Smart Plug-in for HP Operations Manager for Windows

Dell Smart Plug-in (SPI) for HP Operations Manager (HPOM) provides both agent-free (out-of-band) and agent-based (in-band) options for discovery, classification, and monitoring of the following Dell devices in the datacenter environments managed by the HP Operations Manager:

- Dell PowerEdge servers

- Integrated Dell Remote Access Controllers (iDRACs)
- Dell Modular infrastructure
- Dell Storage arrays
- Dell Networking devices
- Dell Workstation

Customers can also launch One-to-One Dell device consoles (such as iDRAC web console) as well as One-to-Many Dell tools (such as OpenManage Essentials) from within the HPOM console to perform configuration, troubleshooting, and other system management activities on Dell devices.

For complete information, see *Dell Smart Plug-in For HP Operations Manager For Microsoft Windows User's Guide* available at **dell.com/support/manuals**.

GUID-321931A0-6F57-4116-814B-E3B3F25BBE15
Dell OpenManage Connection for IBM Tivoli Enterprise Console

The Dell OpenManage Connection for IBM Tivoli Enterprise Console (TEC) provides integrated monitoring of Dell PowerEdge servers and PowerVault storage arrays. It includes event or alert monitoring, from within IBM TEC.

For more information, see the *Dell OpenManage Connection for Tivoli Enterprise Console User's Guide* available at **dell.com/OMConnectionsEnterpriseSystemsManagement**.

GUID-0800AE2E-DED4-457F-AF54-B28BC9C62B81
Dell OpenManage Connection for IBM Tivoli Netcool OMNIbus

Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus provides agent-free (out-of-band) monitoring of Dell PowerEdge Servers, Integrated Dell Remote Access Controllers (iDRAC), Modular Infrastructure, Workstation, Storage Arrays, and Networking devices. It includes event or alert autocorrelation from within the IBM Tivoli Netcool/OMNIbus console. It also supports launching of One-to-One device consoles such as iDRAC web console and One-to-Many Dell tools such as OpenManage Essentials from within the Netcool/OMNIbus console. It helps to perform configuration, troubleshooting, and other system management activities on Dell devices

For complete information, see the *Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus User's Guide* available at **dell.com/support/manuals**.

GUID-B163918C-2D06-4295-89E3-2F173312069B
Dell OpenManage Connection for IBM Tivoli Network Manager IP Edition

Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP edition provides both agent-free (out-of-band) and agent-based (in-band) options for discovery, classification and monitoring of the systems in the datacenter environment.

- Dell PowerEdge servers
- Integrated Dell Remote Access Controllers (iDRAC)
- Dell Modular Infrastructure
- Dell Storage Arrays
- Dell Networking

Along with the Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus, it can also provide event monitoring and auto-correlation for quicker fault detection and solution. Customers can also launch One-to-One device consoles (such as iDRAC web console) and One-to-Many Dell tools (such as OpenManage Essentials) from within the ITNM console to perform configuration, troubleshooting and other system management activities on Dell devices.

For complete information, see the *Dell OpenManage Connection for IBM Tivoli Network Manager IP Edition User's Guide* available at **dell.com/support/manuals**.

Dell OpenManage Plug-in for Oracle Enterprise Manager

Dell OpenManage Plug-in for Oracle Enterprise Manager (OEM) enables customers who manage their data centers using Dell OpenManage Essentials (OME) to integrate with Enterprise Manager. It helps them to discover inventory and monitor the following Dell devices directly from within the Enterprise manage console:

- Dell PowerEdge servers
- Integrated Dell Remote Access Controller (iDRAC)
- Dell Modular Infrastructure
- Dell Storage Arrays
- Dell Networking

It also provides features for automatic and manual mapping of the Oracle database workload to underlying Dell infrastructure. Customers can also launch the One-to-One device consoles (such as the iDRAC web console) and One-to-Many Dell tools (such as OpenManage Essentials) from within the Enterprise Manager console to perform configuration, troubleshooting, and other system management activities on the Dell devices.

For complete information, see the *Dell OpenManage Plug-in for Oracle Enterprise Manager User's Guide* available at **dell.com/support/manuals**.

Dell OpenManage Plug-in for Nagios Core

Dell OpenManage Plug-in for Nagios Core uses agent-free (out-of-band) method to discover inventory and monitor the following Dell devices in the datacenter environments managed by Nagios Core:

- Dell PowerEdge Servers
- Integrated Dell Remote Access Controllers (iDRAC)
- Dell Modular Infrastructure
- Dell Storage Arrays

With this plug-in, customers have comprehensive hardware-level visibility and health monitoring information of the Dell devices including both overall and component-level health monitoring for quicker fault detection and resolution.

For complete information, see the *Dell OpenManage Plug-in for Nagios Core User's Guide* available at **dell.com/support/manuals**.

Dell OpenManage Plug-in for Nagios XI

Dell OpenManage Plug-in for Nagios XI uses agent-free (out-of-band) method to discover inventory and monitor the following Dell devices in the datacenter environments managed by Nagios XI:

- Dell PowerEdge Servers
- Integrated Dell Remote Access Controllers (iDRAC)
- Dell Modular Infrastructure
- Dell Storage Arrays

With this plug-in, customers have comprehensive hardware-level visibility and health monitoring information of the Dell devices including both overall and component-level health monitoring for quicker fault detection and resolution.

For complete information, see the *Dell OpenManage Plug-in for Nagios XI User's Guide* available at **dell.com/support/manuals**.

CA Spectrum and CA Unified Infrastructure Management (Native Integration)

Dell partners with CA technologies to enable native monitoring of Dell server and network switches using the CA Spectrum and CA Unified Infrastructure Management (UIM).

CA Spectrum supports monitoring of Dell PowerEdge servers and network switches, whereas CA UIM (formerly CA Nimsoft Monitor) supports monitoring of Dell PowerEdge servers. Dell's partnership with CA Technologies provides highest level of datacenter and business services manageability to our joint customers and helps in optimizing their Total Cost of Ownership (TCO).

For complete information, see the http://en.community.dell.com/techcenter/systems-management/w/wiki/4105.dell-openmanage-connections-for-partner-consoles available at **delltechcenter.com**.

3

Legacy — Dell Hardware Management Tools

Dell OpenManage Server Administrator

The Dell OpenManage Server Administrator provides a comprehensive one-to-one systems management solution for both local and remote servers and their storage controllers and Direct Attached Storage (DAS). Server Administrator helps to:

- View system configuration, health, inventory and Asset information of the system and provide functions to shut down the server remotely from OMSA GUI console
- Perform monitoring and configuration functions for all the supported RAID and non-RAID controllers and enclosures without using the Option ROM utilities.
- Can communicate via following interfaces - GUI, WMI, SNMP and CLIView system configuration, health, and performance.

For complete information, see the *Dell OpenManage Server Administrator Storage Management User's Guide* available at **dell.com/ openmanagemanuals**.

Baseboard Management Controller Management Utilities

The Baseboard Management monitors the system for critical events by communicating with various sensors on the system board and sends alerts and logs, events, when certain parameters exceed their preset thresholds. The Baseboard Management Controller supports the industry-standard Intelligent Platform Management Interface (IPMI) specification, enabling you to remotely configure, monitor, and recover systems.

For complete information, see the *Dell Baseboard Management Controller Management Utilities User's Guide* available at **dell.com/ esmmanuals**.

Dell OpenManage Client Instrumentation

Client Instrumentation refers to software applications that enable remote management of a client system. The Dell OpenManage Client Instrumentation (OMCI) software enables remote management application programs to access the Dell Enterprise Client system information, monitor the status, or change the state of the system such as remotely shutting down the system. OMCI uses key system parameters through standard interfaces allowing administrators to manage inventory, monitor system health, and gather information of deployed Dell Enterprise client systems.

For complete information, see the *OpenManage Client Instrumentation User's Guide* available at **dell.com/OMConnectionsClient**.

Dell Remote Access Configuration Tool

Dell Remote Access Configuration Tool is a one-to-many application that discovers and configures iDRAC from a single console. It helps to:

- Discover or import the iDRAC IP addresses on the network.
- Update firmware for the selected iDRAC.
- Configure standard or extended schema-based Active Directory settings for selected iDRAC.
- Create the iDRAC objects on the Active Directory server for extended schema-based Active Directory.

For complete information, see *Dell Remote Access Configuration Tool User's Guide* available at **dell.com/esmmanuals**.

Dell OpenManage Deployment Toolkit

The Dell OpenManage Deployment Toolkit includes a set of utilities for configuring and deploying Dell PowerEdge systems. It is designed for customers who want to build scripted installations to deploy large numbers of servers without making many changes to their current deployment process.

In addition to the command-line utilities used to configure various system features, the Deployment Toolkit also provides sample scripts and configuration files to perform common deployment tasks. These files and scripts describe the use of Deployment Toolkit in Microsoft Windows Preinstallation Environment (Windows PE), and embedded Linux environments

For complete information, see the *Dell Deployment Toolkit User's Guide* available at **dell.com/support/manuals**.

Dell IPMI Tool

The Dell IPMI Tool are scriptable-console-application programs used to control and manage remote systems using the IPMI version 2.0 protocol.

For complete information, see the *Dell Baseboard Management Controller Management Utilities User's Guide* available at **dell.com/esmmanuals**.