




**Dell OpenManage Systems Management
Overview Guide
Version 8.0**



Notes, cautions, and warnings

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

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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 leverage 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 around Dell's PowerEdge server hardware management featuring iDRAC with Lifecycle Controller. The following figure shows the Dell systems management offerings.

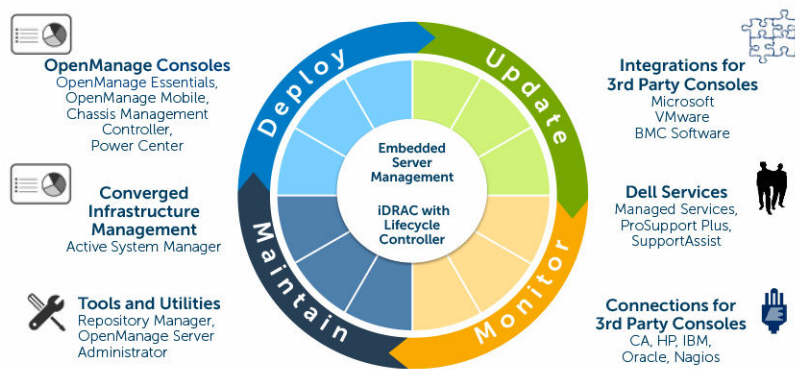


Figure 1. Dell Systems Management Offerings

Dell Hardware Management Tools

- Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller (LC)
- Dell Chassis Management Controller (CMC) for blade servers
- Dell OpenManage Server Administrator (OMSA)
- iDRAC Service Module (iSM)
- Baseboard Management Controller Management Utilities
- OpenManage Client Instrumentation (OMCI)
- Dell OpenManage Mobile (OMM)

Dell Consoles

- Dell OpenManage Essentials (OME)
- Dell Remote Access Configuration Tool (DRACT)
- Dell OpenManage Power Center (OMPC)
- Dell Active System Manager (ASM)

Dell Services

- Managed Services
- Professional Services

- SaaS Management

Dell Tools and Utilities

- Update Utilities
 - Dell Repository Manager (DRM)
 - Dell Update Packages (DUP)
 - Dell OpenManage Server Update Utility (SUU)
 - Dell OpenManage Linux Repository
- Deployment Utilities
 - Dell OpenManage Deployment Toolkit (DTK)
- Configuration Utilities and Interfaces
 - Remote Access Controller Administration (RACADM) CLI
 - Web Services API
 - Dell IPMITool
 - OpenManage Server Administrator CLI

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

- Dell OpenManage Connection for Computer Associates Network and Systems Management (CA NSM)
- Dell Smart Plug-in (SPI) for HP Operations Manager for Windows
- Dell OpenManage Connection for IBM Tivoli Netcool/OMNIBus
- Dell OpenManage Connection for IBM Tivoli Enterprise Console
- Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition
- Dell OpenManage Plug-in for Oracle Enterprise Manager (OEM)
- Dell OpenManage Plug-in for Nagios Core
- Dell OpenManage Wizard for Nagios XI (Beta)
- CA Spectrum and CA Unified Infrastructure Management (Native Integration)

Dell TechCenter

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


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

Other Documents You May Need

You can access the user guides, release notes, installation guides, quick start guides, and so on for the products mentioned in this guide using the following URLs:

- For Enterprise System Management documents — dell.com/openmanagemanuals
- For Remote Enterprise System Management documents — dell.com/esmmanuals
- For Serviceability Tools documents — dell.com/serviceabilitytools
- For Client System Management documents — dell.com/OMConnectionsClient
- For OpenManage Connections Enterprise systems management documents — dell.com/OMConnectionsEnterpriseSystemsManagement
- For OpenManage Connections Client systems management documents — dell.com/OMConnectionsClient

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 Dell 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 OpenManage Connections Enterprise Systems Management documents – Dell.com/OMConnectionsEnterpriseSystemsManagement
- For Serviceability Tools documents – Dell.com/ServiceabilityTools
- For OpenManage Connections Client Systems Management documents – Dell.com/DellClientCommandSuiteManuals
- From the Dell 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.

Systems Management Product Overviews

This section provides product overviews for the Dell systems management suite of products.

Dell Hardware Management Tools

The following table lists the hardware management tools and the operating systems they are supported on.

Table 1. Dell Hardware Management Tools

Product	Windows	Linux	ESXi
Integrated Dell Remote Access Controller with Lifecycle Controller	Yes	Yes	Yes
Dell Chassis Management Controller for Servers	Yes	Yes	Yes
Dell OpenManage Server Administrator	Yes	Yes	Yes
iDRAC Service Module	Yes	Yes	Yes
Baseboard Management Controller Management Utilities	Yes	Yes	No
Dell OpenManage Client Instrumentation	Yes	Yes	No

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 achieves this by alerting 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.

- The Lifecycle Controller console provides local one-to-one deployment for operating system installation, updates, configuration, and for performing diagnostics on single local servers. This eliminates the need for multiple option ROMs for hardware configuration.
- The Lifecycle Controller Remote Services further enables remote systems management in a one-to-many method. Remote Services are accessible over the network using the secure Web services interface and can be programmatically utilized by applications and scripts. Remote services enable management consoles to perform one-to-many bare-metal server provisioning. The combination of the Auto-discovery feature to identify and authenticate the attached Dell system to the network and integration with one-to-many management consoles reduces the manual steps required for server setup and management. The interface is aimed at simplifying many tasks, some of which include

remotely deploying an operating system, remote update and inventory, and remotely automating the setup and configuration of new and already-deployed Dell systems. Developed on the industry standard Unified Extensible Firmware Interface (UEFI) platform and Web Services for Management (WSMAN) web services interfaces, Lifecycle Controller provides an open environment for console integration that also allows custom scripting for Lifecycle Controller.

iDRAC with Lifecycle Controller provides the following benefits:

- **Increase Availability** — Early notification of potential or actual failures can help prevent a server failure or reduce recovery time in the case of a failure.
- **Improve Productivity and Lower Total Cost of Ownership** — Extending the reach of administrators to larger numbers of distant servers can make IT staff more productive while reducing the operational costs such as travel.
- **Secured Connectivity** — By providing secure access to remote servers, administrators can carry out business-critical functions, while maintaining server and network security.
- **Simplified Management through Automation** - Lifecycle Controller provides local or remote automation through the Lifecycle Controller GUI and Web Services API, reducing overall steps and providing a repeatable process for systems management.

You can perform the following:

- The Dell servers (through iDRAC) can automatically check and update the latest firmware for various components from a network repository or directly from **dell.com** based on a recurring schedule. You can perform all the updates in a single reboot. It can establish firmware baselines for server groups.
- Automatically perform regular backups of the server configuration and firmware based on a recurring schedule.
- Automatically configure components in a server or multiple servers using DHCP provisioning and XML Server Configuration Profiles that iDRAC accesses from a network share.
- Automatically configure iDRAC to use the dedicated Network Interface Card (NIC) if a link is detected on the iDRAC dedicated NIC.

iDRAC shares Lifecycle Controller features such as firmware update, backup and restore, lifecycle log, and hardware inventory export. For complete information, see *iDRAC7 User's Guide*, *iDRAC8 User's Guide*, *Lifecycle Controller Graphical User Interface User's Guide*, and *Lifecycle Controller Remote Services Quick Start Guide*.

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. It provides a secure interface that enables an administrator to inventory, perform configuration, and monitor tasks, remotely turn on or turn off servers, and enable alerts for events on servers and components in the servers. 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 (either 1600W or 1100W) 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 traffic within the server, and enable LAN/ SAN convergence — reducing cost and complexity.

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

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:

- Simplify single-server-monitoring with a secure command line or Web-based management.
- View system configuration, health, and performance.
- View information about systems that are operating normally, systems that are having problems, and systems that require remote recovery operations.
- Shut down and restart the server.
- Perform functions for all the supported RAID and non-RAID controllers and enclosures from a single GUI, without using the Option ROM utilities.
- Send unique system identifiers such as system service tag, chassis service tag, and system FQDN and Enhanced Error Message Initiative (EEMI) messages (Message ID) with the SNMP trap varbinds.

To enable storage management through Server Administrator, the storage management service must be installed. This helps to:

- Configure a system's locally-attached RAID and non-RAID disk storage using enhanced features.
- Configure data-redundancy, assign hot spares, import foreign disk configuration, or rebuild the failed physical disks to protect data.
- Generate Physical Disk firmware reports.

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

iDRAC Service Module

The iDRAC Service Module is a software application that is recommended to be installed on the server (it is not installed by default). This module complements iDRAC with monitoring information from the operating system. It does not have an interface but complements iDRAC by providing additional data to work with iDRAC interfaces such as the Web interface, RACADM, and Web Services API. You can configure the features monitored by the iDRAC Service Module to control the CPU and memory consumed on the server's operating system.

The iDRAC Service Module provides the following monitoring features:

- Operating System information
- Replicate Lifecycle Controller logs to operating system logs
- Automatic system recovery options
- Populating Windows Management Instrumentation (WMI) information
- Integration with Technical Support Report. This is applicable only if iDRAC Service Module Version 2.0 or later is installed.
- Integration with NVMe Management for Prepare to Remove operation on a NVMe class PCIe SSD.

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

Baseboard Management Controller Management Utilities

The Basic 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.

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 more information on OMCI, see the *OpenManage Client Instrumentation User's Guide* available at dell.com/OMConnectionsClient.

Dell Consoles

The following table lists the consoles and the operating systems they are supported on.


Table 2. Dell Consoles

Product	Windows	Linux
Dell OpenManage Essentials	Yes	-
• Management workstation	Yes	Yes
• Managed nodes	Yes	Yes
Dell Remote Access Configuration Tool	Yes	-
Dell OpenManage Power Center	Yes	Yes

Dell OpenManage Essentials

Dell OpenManage Essentials is the newest one-to-many management console for managing Dell PowerEdge servers and direct- attached storage as it 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, Dell clients, Dell Power Distribution Units (PDU), Dell Uninterruptible power supply (UPS), EqualLogic or MD series storage, and Dell PowerConnect and Force 10 switches. It also includes status polling that detects change in health status.
- Provide hardware-level control and management for Dell PowerEdge server, blade system, and internal storage arrays.
- Allow hardware control of Windows, Linux, VMware, and HyperV environments.
- Enable management and control of Dell Blade chassis, EqualLogic or MD series storage, PowerConnect switch through context-sensitive link and launch of their respective element management tools.
- Schedule daily, weekly, or monthly tasks.
- 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 PowerShell-based CLI support to discover and group systems.
- Provide REST interface API support for 3rd Party Integration.
- Manage Server Configuration. Server Configuration Management is a fee-based license available on Dell's 12th and 13th generation of PowerEdge servers with iDRAC Enterprise or iDRAC Express licences. The key features include the following:
 - Configuring a server or chassis using a template and deploying an operating system on the 12th or 13th generation of Dell PowerEdge bare metal servers.
 - Detecting and notifying automatically the PowerEdge server or chassis drift from a customer-defined baseline configuration during a server operation .
 - Booting a system from a network mounted ISO using iDRAC.
 - Accessing licenses at server point of sale (POS) or after point of sale (APOS).

 **NOTE:** Feature or functionality is activated by entering the Server Configuration license key on iDRAC Enterprise or iDRAC Express.

OpenManage Essentials is a Dell hardware element management solution that is optimized for managing the Dell hardware infrastructure. It can be integrated to other point solutions to provide end-to-end IT infrastructure management. Hereafter, OpenManage Essentials replaces the legacy Dell IT Assistant.

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

Dell OpenManage Mobile

OpenManage Mobile is a software application that enables you to remotely and securely perform a subset of datacenter monitoring and server remediation tasks from your Android and iOS handheld

devices. OpenManage Mobile connects to your datacenter through the Dell OpenManage Essentials management console. This allows you to monitor all systems managed by OpenManage Essentials such as Dell servers, storage, networking, and Firewall appliances and any other supported third party appliance from your android and iOS mobile devices.

OpenManage Mobile can also connect to a server directly through the iDRAC interface. Once connected, a user can perform several basic management functions directly on the 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 Remote Access Configuration Tool

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

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

You can do the following:

- Track power and thermal at rack, row, and room level.
- Rack-level power capping.
- Risk mitigation with predefined policies.
- REST API support for reports.
- Supports heterogeneous environment (discovers both dell and non-dell devices).
- Generate reports for stranded power for devices and device groups, inventory and monitoring.
- OMPC database backup can be scheduled and can be used as a restore point in case of a disk failure.

- Replicate the data center hierarchy on the iDRAC location based on OMPC physical location modelling.
- View and analyze the subsystem power and Compute Usage for Second (CUPS) values.
- Analysis and server planning:
 - Power history and evaluation for placement of new servers.
 - Thermal history and analysis of cooling needs.
 - Assist in planning capacity expansion and provide placement suggestions.
 - Identify the underutilized servers in the data center based on power consumption pattern.
 - Help to identify the potential cooling concerns in the data center.

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. The key features are:

- Template-based provisioning — Deploy services using end-to-end infrastructure and workload configurations based on established best practices.
- Service mobility — Abstract infrastructure configuration and identity information within service templates, enabling mobility of services across servers and other devices.
- Intuitive Design — Intuitive wizard-driven UI guides users through infrastructure and configuration and management functions.
- Open, extensible architecture — Simplified integration of existing and future IT resources, both Dell and Non-Dell.
- Workflow Automation — Step-by-step definition and execution of across the lifecycle, from provisioning to decommissioning.
- Infrastructure lifecycle management — Management of the entire lifecycle of infrastructure, from discovery and inventory through configuration and provisioning, and eventually on-going management.
- Integration with VMware and Microsoft virtualization platforms — Cluster-level and VM lifecycle management for VMware vSphere and Microsoft Hyper-V platforms.
- Resource pooling & dynamic allocation — Create and manage physical and virtual resource pools and allocate to users and groups on demand.


For more information, see dell.com/asm.

Dell Tools And Utilities

The following table lists the tools and utilities and the operating systems they are supported on.

Table 3. Dell Tools And Utilities

Product	Windows	Linux
Dell Repository Manager	Yes	-

Product	Windows	Linux
 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 OpenManage Deployment Toolkit	Yes	Yes
Dell Remote Controller Administration (RACADM) CLI	Yes	Yes
Dell IPMITool	Yes	Yes
Web Services API	Yes	Yes
Dell OpenManage Server Administrator CLI	Yes	Yes

Dell Repository Manager

The Dell Repository Manager (DRM) is a standalone Windows-based application that helps simplify the process of managing downloads and baseline component configurations, firmware, and driver updates. Dell Repository Manager can compare differences between two repositories at the bundle and component level. It allows you to create deployment tools using a custom repository. The tool can create and manage repositories for servers, select PowerVault and EqualLogic storage, and Dell Optiplex/Dell Latitude/Dell Precision Workstations.

- DRM utilizes the catalogs located on the Dell FTP site, DRM also provides the capability to search for recent files that are located on the Dell Support site. Additionally, using DRM you can schedule searches for newer updates.
- DRM provides advanced integration capabilities with iDRAC, Dell OpenManage Essentials, Dell PowerEdge M1000e, VRTX, and FX2 chassis. Dell OpenManage Integration for VMware vCenter allows these programs to work with DRM to provide optimized repositories for accessing component updates.

The Dell Repository Manager supports the following features:

- User Query – Define filters for searching for the required updates.
- Custom Baseline – Define custom baseline configurations.
- Flexible Output – Get multiple output options to simplify BIOS and firmware updates, and driver provisioning during operating system deployment and post Operating system updates.
- Custom Repository – Define and manage a custom local repository that contains only the required updates.
- Search Latest Updates – Manually search the Dell support site for the latest updates or schedule operating system task to search the Dell support site.
- Manage a local repository – Compare a local repository with another repository (Dell online repository), check the differences, and then update the local repository.
- Jobs Queue services – Run time-consuming tasks at the background.
- Centralized Data Management – For customized repositories.
- Search Dell Support Site – Find updates that are newer than the versions available in the FTP Catalog.
- Scheduled Repository Search for new updates – Set up a recurring search that discovers new updates when they are released

Dell Repository Manager can create the following deployment tools:

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

You can perform the following tasks using Dell Repository Manager:

- Configure Settings
- Create new Repositories
- Manage Repositories
- Create Deployment Tools
- Automate discovery of New Updates

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

Dell Update Packages

The Dell Update Package is a self-contained executable in a standard package format that updates an application or component firmware on a server.

DUPs are available for components such as system BIOS, Embedded Systems Management (ESM) firmware, iDRAC firmware, network firmware and drivers, Remote Access Controller firmware, RAID controller firmware and device drivers, NIC firmware, OpenManage application, and so on.

You can use DUPs to:

- Apply an individual update to a system by using an interactive command line interface (CLI).
- Install device drivers in interactive and non-interactive modes.
- Execute multiple updates on the system by using a script comprised of non-interactive commands that you write using the CLI feature.
- Leverage the scheduling of your operating system and software distribution utilities to apply updates remotely to any number of systems.

You can apply the updates using the operating system, iDRAC Web interface, RACADM CLI, or Web Services API interface.

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

Dell OpenManage Server Update Utility

The Dell Server Update Utility (SUU) application identifies and applies updates to the system. Use this utility to update managed systems or view the updates available for systems. The utility compares the versions of components on the system with the available updates for those components. You can download SUU from support.dell.com. Additionally, use Dell Repository Manager to create a customized SUU that contains only the updates available for the systems that are managed.

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

Dell OpenManage Linux Repository

The Dell OpenManage Linux Repository (DLR) provides updates in RPM package Manager format, which is commonly used by the opensource tools such as Yellodog Update Modified (YUM), Zypper, Red Hat Satellite Network, and so on. Dell has enhanced the Dell Linux Repository with Dell System Update (DSU). DSU is an improved version of DLR to distribute Dell updates for Linux systems. For more information, see <http://linux.dell.com/repo/hardware/>.

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 Pre-installation Environment (Windows PE), and embedded Linux environments. It helps to:

- Provide the tools necessary to automate the pre-operating system configuration tasks and the unattended operating system installation tasks when deploying PowerEdge systems.
- Scale to support one-to-many system deployment efforts.
- Facilitate consistent system configurations across multiple systems.
- Provide diverse and useful deployment tools that can be utilized in different ways.
- Manage RAID configuration.

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

Dell Remote Access Controller Administration (RACADM) CLI

The RACADM command-line utility provides a scriptable interface that allows you to locally or remotely configure iDRAC, BIOS, NIC/CNA/FC-HBA, RAID, and non-RAID storage, perform FW update, get inventory, and component status.. The RACADM utility runs on the management station and the managed system.

You must install DRAC Tool to use RACADM. For complete information, see the *RACADM Command Line Reference Guide for iDRAC and CMC* available at dell.com/support/manuals.

Web Services API Tools and Data Model Profiles

iDRAC with Lifecycle Controller technology provides a Web Services API by using the Web Services For Management (WSMAN) management protocol. The API is organized into Dell Common Information Model (DCIM) Profile specification that includes various system and component inventory, configuration, update, and monitor functionality. For more information on the management capabilities provided by the iDRAC, and also the CMC in M1000e and VRTX products, see delltechcenter.com/lc.

For more information on DCIM Profiles (API documentation) and Dell Whitepapers, see <http://en.community.dell.com/techcenter/systems-management/w/wiki/1906.dcim-library-profile>.

Several python and shell or batch scripting infrastructures and examples are available to assist automating system management tasks and simplify API integration. For more information on python, Powershell, and

scripting tools available from Dell, see <http://en.community.dell.com/techcenter/systems-management/w/wiki/1981.scripting-the-idrac-and-lifecycle-controller>.

Dell IPMITool

The Dell IPMITool 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/esmanuals.

OpenManage Server Administrator Command Line Interface

Dell OpenManage Server Administrator provides a comprehensive, one-to-one systems management solution by using a command line interface (CLI). Server Administrator CLI has the following primary commands:

- `omconfig` — Allows you to configure the system's hardware and direct attached storage.
- `omhelp` — Displays short text help for CLI commands.
- `omreport` — Displays reports of the management information of a system.

For complete information, see *OpenManage Server Administrator Command Line Interface User's Guide* available at dell.com/support/manuals.

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

Dell Server Management Pack Suite for Microsoft System Center Operations Manager

Dell Server Management Pack Suite for Microsoft System Center Operations Manager is a set of management packs enabling the following functions through System Center Operations Manager:

- In-band discovery and monitoring rack, towers, and blades
- Out-of-band discovery of 12th and 13th generation PowerEdge servers
- Discovery and detailed monitoring of Dell M1000e and VRTX chassis with support for chassis blade correlation
- Discovery and monitoring of DRACs
- Monitoring power and NIC performance
- Integration with the following Dell solutions:

- OpenManage Power Center
- Dell License Manager
- Warranty
- Link and launch one to one systems management interfaces from Operations Consoles for detailed troubleshooting:
 - OpenManage Server Administrator
 - DRAC Console
 - CMC Console
 - Remote Desktop Console (for Windows)
- Support for Dell Precision Rack Workstations
- Performance monitoring of Power, NIC, CPU, I/O, Memory and CUPS system board metrics
- Support for Host network interface monitoring through agent-free (using iDRAC Service Module)

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

Dell Lifecycle Controller Integration for Microsoft System Center Configuration Manager

Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Configuration Manager provides agent-free, OS and hypervisor agnostic configuration and update of Dell 11th, 12th, and 13th generation PowerEdge servers. Through automated processes, IT Administrators can reduce steps, time, and cost in configuring servers from a bare-metal state and preparing remote 1-to-many operating system (OS) deployment.

At a high level, the remote enablement capabilities are:

- Auto-discovery
- Hardware configuration
- Firmware comparison and updates
- Remote OS-deployment for individual or a collection of Dell systems

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 (DSDP) for Microsoft System Center Configuration Manager automates bare-metal configuration and deployment of a variety of Microsoft Windows operating system versions (leveraging PxE-based OS deployment) and applications from a central location to PowerEdge servers across enterprise networks.

You can perform the following tasks using the Dell Server Deployment Pack:

- Configure the server's Dell Remote Access Controller (DRAC), integrated Dell Remote Access Controller (iDRAC), RAID, and BIOS using INI files and Command Line Interface (CLI) options. You can also configure RAID using the Array Builder Wizard.
- Create a Dell-specific boot image that is used in the operating system deployment.
- Import and apply driver installation packages for specific Dell servers.

- Consolidated launch points to various wizards, to perform a typical server deployment on site server installation.
- Enhanced support for up to sixteen global and dedicated RAID hot spares.
- Support for Microsoft System Center Configuration Manager 2012, 2012 SP1, 2007 R2, SP2, and R3 releases.
- Support for importing of Dell Deployment ToolKit (DTK) using the PowerEdge Deployment ToolKit Configuration Wizard. Make sure that you import DTK package only from the site server and not from the admin console.
- Support for importing Dell driver packages from the Configuration Manager Admin Console.
- Support for deployment using x64 boot images (DTK with 64-bit support is required).

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 2012 SP1/R2 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 2012 SP1/R2 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.


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

Dell PRO Pack manages Dell physical devices and their hosted virtual machines (VMs) by leveraging the monitoring and alerting capabilities of Microsoft System Center Operations Manager (SCOM) and remediation capabilities of System Center Virtual Machine Manager (SCVMM). It recommends remedial actions when monitored-objects transition to an unhealthy state (for example, virtual disk failure or predictive drive error).

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.

Dell 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 from a dedicated Dell menu accessed directly through the VMware vCenter console. Dell OMI also allows granular control and reporting for the hardware environment using the same role-based access control model as vCenter.

 **NOTE:** The Dell Repository Manager integrates with Dell 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.



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 is 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 Consoles

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

Table 4. Connections For Third Party Consoles

Product	Windows	Linux	ESXi
Dell OpenManage Connection for Computer Associates Network and Systems Management	Yes	-	-
Smart Plug-in for HP Operations Manager	Yes	-	Yes
 NOTE: Use Dell Connections License Manager for managing licenses and licensable features available with Smart Plug-in.			
Dell OpenManage Connection for IBM Tivoli Netcool/OMNIBus	Yes	Yes	Yes
Dell OpenManage Connection for IBM Tivoli Enterprise Console	Yes	-	-
Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition	Yes	Yes	Yes
 NOTE: Use Dell Connections License Manager for managing licenses and licensable features available with Dell OpenManage Connection for ITNM IP Edition.			
Dell OpenManage Plug-in for Oracle Enterprise Manager (OEM)	Yes	Yes	Yes
Dell OpenManage Plug-in for Nagios Core	-	Yes	Yes
Dell OpenManage Wizard for Nagios XI (Beta)	-	Yes	Yes

Dell OpenManage Connection for Computer Associates Network and Systems Management

The Dell OpenManage Connection for Computer Associates Network and Systems Management allows you to monitor Dell PowerEdge servers and PowerVault storage arrays from within the Computer Associates (CA) Network and Systems Management (NSM) console. It helps to:

- Monitor and group Dell systems from an existing Computer Associates systems management framework.
- Display Dell system health information in real-time within the CA NSM console.

- Receive an alert and quickly take corrective action if a Dell system becomes compromised.
- Use an existing systems management framework when Dell systems complete your data center.

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 for HP Operations Manager enables the datacenter customers to monitor Dell server, storage and networking infrastructure in environments managed by the HP Operations Manager console. Dell Smart Plug-in protects existing investments of IT organizations in the HP Operations Manager console and eases the integration and monitoring of Dell devices.

The following are the key features of Dell Smart Plug-in for HP Operations Manager:

- Monitors Dell PowerEdge Servers in either in-band or out-of-band mode, iDRACs, Workstation, Chassis, Storage, and Network Switch devices.
- Provides agent-free, out-of-band monitoring by leveraging iDRAC with Lifecycle Controller.
- Correlates alerts automatically to focus only on the current outstanding problems.
- Configures or manages Dell devices by launching Dell one-to-one and one-to-many console solutions directly from the HP Operations Manager Console.
- Enables device association of Dell Modular Servers, Storage, or Network Switches to Dell Chassis to locate blades in a chassis.

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

Dell OpenManage Connection for IBM Tivoli Netcool OMNibus

Dell OpenManage Connection for IBM Tivoli Netcool/OMNibus monitors Dell devices by receiving alerts on the IBM Tivoli Netcool/OMNibus console. It also supports one-to-one element management console launch, which is followed by the Dell device alerts and Dell Tools launch from the OMNibus console in order to perform troubleshooting, configuration, and management activities.

The following are the key features of Dell OpenManage Connection for IBM Tivoli Netcool/OMNibus:

- Monitor alerts from Dell Servers, Dell Remote Access Controllers, Workstations, Chassis, Storage arrays, and Network Switches.
- Provides agent-free, out-of-band monitoring by leveraging iDRAC with Lifecycle Controller.
- Correlates alert automatically to focus only on the current outstanding problems, which helps in quicker fault detection and resolution.
- Configures or manages Dell devices by launching Dell one-to-one and one-to-many console solutions directly from Netcool/OMNibus console.

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

Dell OpenManage Connection for IBM Tivoli Enterprise Console

The Dell OpenManage Connection for IBM Tivoli Enterprise Console is a systems management plug-in that extends the management of Dell PowerEdge systems and Dell PowerVault storage systems to users of the Tivoli Enterprise Console management product. It allows users to integrate the management of Dell systems to make them easier to manage. The Connection also allows systems management


professionals to take corrective action on Dell systems when a Dell-specific alert is received at the enterprise. These alerts include, but are not limited to, temperature, fan speed, and chassis intrusion. For more information, see the *Dell OpenManage Connection for Tivoli Enterprise Console User's Guide* available at dell.com/OMConnectionsEnterpriseSystemsManagement.

Dell OpenManage Connection for IBM Tivoli Network Manager IP Edition

Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition enables the datacenter customers to monitor the Dell devices in an environment managed by the existing ITNM console. It helps customers to discover the Dell devices and then monitor the overall health of the Dell devices periodically. It also supports console launch of Dell devices and Dell Tools to perform further analysis.

Dell OpenManage Connection for ITNM provides the following features:

- Discovery, classification, and monitoring of Dell Servers, Dell Remote Access Controllers, Workstations, Chassis, Storage arrays, and Network Switches.
- Provides agent-free, out-of-band server monitoring by leveraging embedded iDRAC with Lifecycle Controller.
- Provides SNMP event monitoring and automatic event correlation support for quicker fault detection with Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus.
- Launches Dell consoles directly from ITNM IP Edition console (one-to-one and one-to-many) to perform further troubleshooting, configuration, or management activities.
- Correlates Dell devices (blade servers/storage/switches) to a specific system chassis for easy system identification.
- Supports periodic monitoring of Dell Connections License Manager (DCLM) for license availability (applicable only for agent-free server monitoring).

 **NOTE:** Dell OpenManage Connection for ITNM IP Edition requires Dell OpenManage Connection for IBM Tivoli Netcool/OMNIbus for event or trap monitoring support of the Dell devices.

Dell OpenManage Plug-in for Oracle Enterprise Manager

Dell OpenManage Plug-in for Oracle Enterprise Manager provides a proactive approach to data center management that delivers features for monitoring Dell server, storage, and networking infrastructures in environment managed by Oracle Enterprise Manager that is easy and cost-effective. It also supports console launch of Dell devices and Dell tools to perform further analysis.

The following are the key features supported by Dell OpenManage Plug-in for Oracle Enterprise Manager:

- Discovery, inventory, and monitoring of the following Dell hardware:
 - 12th generation PowerEdge servers using agent-free, out-of-band mode through the Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller
 - 9th generation to 12th generation PowerEdge servers using in-band mode through the OpenManage Server Administrator (OMSA) agent
 - Compellent, EqualLogic, PowerVault MD, and PowerVault NX storage arrays
 - PowerEdge VRTX and M1000e chassis
 - Force10 and PowerConnect switches
- Automatic mapping of Oracle Database workload to the host server. Other targets (storage and switches) can be linked manually in the Oracle Enterprise Manager.
- Device association of Dell blade systems (Dell blade servers, EqualLogic Blade Arrays, and Force10 Blade IO modules with PowerEdge VRTX and M1000e chassis)

- Configuration and management of Dell devices by launching the following Dell 1:1 and 1:Many Console solutions directly from the OEM Console:
 - Integrated Dell Remote Access Controller (iDRAC) console
 - OpenManage Server Administrator (OMSA) console
 - EqualLogic Group Manager console
 - Compellent Storage Center console
 - Chassis Management Controller consoles for M1000e chassis and VRTX chassis
 - OpenManage Switch Administrator console
 - OpenManage Essentials console

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 provides a proactive approach to data center management that delivers features for monitoring Dell's 12th and later generations of PowerEdge servers in environments managed by the Nagios Core console. With this plug-in, you have comprehensive hardware-level visibility such as overall and component-level health monitoring for quicker fault detection and resolution of the Dell PowerEdge servers. The plug-in protects existing investments of IT organizations in the Nagios Core console and eases the integration and monitoring of Dell servers.


The following are the key features supported by Dell OpenManage Plug-in for Nagios Core:

- Discovers and monitors Dell 12th and later generations of PowerEdge servers through an agent-free, out-of-band method by using Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller.
- Monitors overall and component-level (such as fan, battery, physical disk, virtual disk, fan, battery, NIC, intrusion, and so on) health status of Dell servers by using SNMP or Web Services API protocol.
- Monitors SNMP alerts from supported devices.
- Provides basic system information such as component-level details about Dell servers.
- Launches iDRAC web console from Nagios Core to perform further troubleshooting, configuration, or management activities.

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

Dell OpenManage Wizard for Nagios XI (Beta)

Dell OpenManage Wizard for Nagios XI provides a proactive approach to data center management that delivers features for monitoring Dell PowerEdge servers in environments managed with Nagios XI console. The wizard protects existing investment of IT organizations in the Nagios XI console and eases the integration and monitoring of Dell servers.

 **NOTE:** The wizard is currently available as a public beta release to gauge customer interest, and is not covered by Dell support.

The following are the key features supported by Dell OpenManage Wizard for Nagios XI:

- Discovers inventory of Dell PowerEdge servers, using agent-free technology through iDRAC with Lifecycle Controller.
- Monitors overall server health.

- Launches iDRAC web console from Nagios XI to perform further troubleshooting, configuration, or management activities.

CA Spectrum and CA Unified Infrastructure Management (Native Integration)

Dell partners with CA Inc. to enable native monitoring of Dell server and Dell network switches within CA's product line. CA Spectrum supports monitoring of Dell PowerEdge servers and Dell network switches (formerly Force10 switches), while CA Unified Infrastructure Management (formerly CA Nimsoft Monitor) supports monitoring of Dell PowerEdge servers. Dell's partnership with CA Inc. helps to make sure that Dell and CA Software – based IT infrastructure and services, provide the highest level of datacenter and business services manageability and optimizing customer's total cost of ownership (TCO) in case the customer is an existing user of CA products.

Dell Server Management Operations

Dell's approach to systems management is centered on the server lifecycle – Deploy, Update, Monitor, and Maintain. To manage an infrastructure properly and efficiently, you must perform these functions easily and quickly. This allows you to invest more time and energy on business improvements, and less on maintenance.

The figure illustrates the various operations that can be performed during a server's lifecycle.

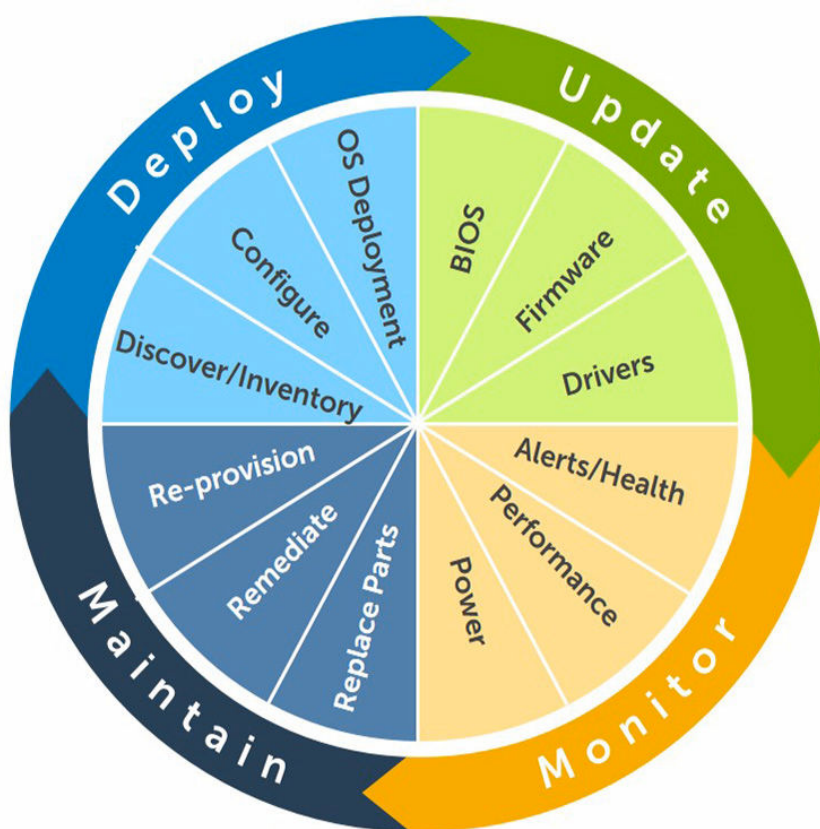


Figure 2. Server Lifecycle

The following table lists the products that are recommended for one-to-one and one-to-many operations, and when they are used in the server's lifecycle. However, you can use the one-to-many tools for one-to-one, and some of the one-to-one tools can be automated for one-to-many.

Table 5. Server Management Operations

Operation	One-To-One	One-To-Many
Deploy	<ul style="list-style-type: none"> • Lifecycle Controller GUI • Deployment Toolkit (DTK) 	<ul style="list-style-type: none"> • Dell OpenManage Essentials • Dell OpenManage Integration for VMware vCenter • DLCI for Microsoft System Center Configuration Manager (SCCM) • DLCI for System Center Virtual Machine Manager (SCVMM) • BMC Software BladeLogic • Lifecycle Controller Remote Services
Update	<ul style="list-style-type: none"> • Integrated Dell Remote Access Controller (iDRAC) • Lifecycle Controller GUI • Dell Update Packages (DUP) • Server Update Utility (SUU) • Dell OpenManage Linux Repository • Dell Repository Manager 	<ul style="list-style-type: none"> • Dell OpenManage Essentials • Dell OpenManage Integration for VMware vCenter • DLCI for Microsoft System Center Configuration Manager • DLCI for System Center Virtual Machine Manager • BMC Software BladeLogic • Lifecycle Controller Remote Services
Monitor	<ul style="list-style-type: none"> • Basic Management Controller (BMC) • iDRAC • OpenManage Server Administrator (OMSA) 	<ul style="list-style-type: none"> • Dell OpenManage Essentials • Dell OpenManage Power Center • Dell OpenManage Integration for VMware vCenter • BMC Software ProactiveNet • Dell Server Management Pack Suite for Microsoft System Center Operations Manager (SCOM) • Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (SCVMM) • Dell OpenManage Connections for Third Party Consoles
Maintain	<ul style="list-style-type: none"> • Basic Management with IPMI • iDRAC • Lifecycle Controller GUI 	<ul style="list-style-type: none"> • Lifecycle Controller Remote Services • DLCI for Microsoft System Center Configuration Manager (SCCM)

The Dell OpenManage portfolio of systems management products and services is comprehensive and delivers solutions under the following categories of operations:

- Deploy (see [Deploy – One-To-One](#) and [Deploy – One-To-Many](#))
- Update (see [Update – One-To-One](#) and [Update – One-To-Many](#))
- Monitor (see [Monitor – One-To-One](#) and [Monitor – One-To-Many](#))
- Maintain (see [Maintain – One-To-One](#) and [Maintain – One-To-Many](#))

Deploy

Table 6. Deploy — One-To-One

Feature Name	OMSA	LC	System Setup	DTK	BMC*	iDRAC (Rack, Tower, and Blades)
Auto-discovery	-	-	Yes	-	-	Yes
Auto Configuration	-	-	-	-	-	Yes
OS Deployment	-	Yes	-	-	-	Yes
Configure						
BIOS	Yes	Yes	Yes	Yes	-	Yes
BMC*	-	-	-	-	Yes	-
OMSA Web Server	Yes	-	-	-	-	-
Probes or Sensors	Yes	-	-	-	Yes	Yes
Boot Order	Yes	-	-	-	-	Yes
LCD Panel Security	Yes	Yes	-	-	-	Yes
vFlash	-	Yes	-	-	-	Yes
RAID Configuration and Operations	Yes	Yes	-	Yes	-	Yes
Local Key Encryption	Yes	Yes	-	-	-	Yes
Break Mirror	-	Yes	-	-	-	Yes
HII Configuration	-	Yes	Yes	-	-	-
Power Capping	Yes	-	Yes	-	-	Yes
Power Redundancy (For Rack and Tower)	-	-	Yes	-	-	Yes
SOL and Serial Port	Yes	-	-	-	-	Yes
iDRAC Network Configuration	-	Yes	Yes	-	-	Yes
SSL		-	-	-	-	Yes
Terminal Mode	Yes	-	-	-	-	Yes
Local Users	Yes	-	-	-	-	Yes
Active Directory	Yes	-	-	-	-	Yes

Feature Name	OMSA	LC	System Setup	DTK	BMC*	iDRAC (Rack, Tower, and Blades)
<i>Smart Card</i>	Yes	-	-	-	-	Yes
<i>RAID</i>	Yes	Yes	Yes	Yes	-	Yes
<i>Non-RAID</i>	Yes	Yes	Yes	-	-	Yes
<i>SSD Storage</i>	Yes	Yes	Yes	-	-	Yes
<i>NICs</i>	-	Yes	-	Yes	-	Yes
<i>CNAs</i>	-	Yes	-	-	-	Yes
<i>FC-HBAs</i>	-	Yes	-	-	-	Yes
Virtual Console	-	-	-	-	-	Yes
Virtual Media	-	-	-	-	-	Yes
Certificate Management	Yes	-	-	-	-	Yes
License Management	-	-	-	-	-	Yes


* BMC indicates Baseboard Management Controller

Table 7. Deploy – One-To-Many

Feature Name	LC-RS*	CMC	DTK	OME	DLCI for SCCM	DLCI for SCVMM
Auto-discovery	Yes	Yes	-	-	Yes	Yes
Auto Configuration	Yes	-	-	-	-	-
In-band Discovery	-	-	-	Yes	-	-
Out-of-band Discovery (Systems)	-	-	-	Yes	Yes	Yes
Out-of-band Discovery (iDRAC)	Yes	-	-	Yes	Yes	Yes
OS Deployment	Yes	-	Yes	Yes	Yes	Yes
Configure						
<i>BIOS</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>OMSA Web Server</i>	-	-	-	Yes	-	-
<i>Boot Order</i>	Yes	Yes	-	Yes	Yes	Yes
<i>LCD Panel Security</i>	Yes	-	-	Yes	Yes	-
<i>vFlash</i>	Yes	-	-	-	Yes	-

Feature Name	LC-RS*	CMC	DTK	OME	DLCI for SCCM	DLCI for SCVMM
<i>RAID Configuration and Operations</i>	Yes	-	-	Yes	Yes	Yes
<i>Local Key Encryption</i>	Yes	-	-	-	Yes	-
<i>Break Mirror</i>	Yes	-	-	-	Yes	-
<i>HII Configuration</i>	-	-	-	-	Yes	-
<i>Power Capping</i>	Yes	Yes	-	-	Yes	-
<i>Power Redundancy (For Rack and Tower)</i>	-	-	-	-	Yes	-
<i>Grid Redundancy</i>	-	Yes	-	-	-	-
<i>iDRAC Network Configuration</i>	Yes	Yes	-	Yes	-	-
<i>Local Users</i>	Yes	Yes	-	Yes	-	-
<i>Active Directory</i>	Yes	Yes	-	Yes	-	-
<i>Smart Card</i>	-	-	-	-	-	-
Certificate Management	Yes	Yes	-	Yes	-	-
License Management (see Note)	Yes	-	-	-	-	-

* LC–RS indicates Lifecycle Controller Remote Services.

 **NOTE:** Alternatively, use Dell License Manager for one-to-many license management for iDRAC licenses or use Dell Connections License Manager for managing licenses and the licensable features provided with the Dell Connections products. To download the license manager, go to support.dell.com.

Update

Table 8. Update – One-To-One

Feature Name	LC	iDRAC (Rack, Tower, and Blades)	SUU	DUP	DRM
BIOS Firmware	Yes	Yes	Yes	Yes	Yes
PSU Firmware	Yes	Yes	Yes	Yes	Yes
Diagnostics (No Rollback)	Yes	Yes	Yes	Yes	Yes
Operating System Driver Packs (No Rollback)	Yes	Yes	Yes	Yes	Yes
NIC Firmware	Yes	Yes	Yes	Yes	Yes
iDRAC Firmware	Yes	Yes	Yes	Yes	Yes

Feature Name	LC	iDRAC (Rack, Tower, and Blades)	SUU	DUP	DRM
RAID Controller Firmware	Yes	Yes	Yes	Yes	Yes
Physical Disk Firmware	-	Yes	Yes	Yes	Yes
Enclosure Firmware	Yes	Yes	Yes	Yes	Yes
Lifecycle Controller (No Rollback)	Yes	Yes	Yes	Yes	Yes
Part Replacement (RAID and NIC)	Yes	Yes	-	-	-
Lifecycle Controller Repair Package	-	Yes	-	-	-
CPLD	Yes	Yes	-	Yes	Yes
FC Cards	Yes	Yes	Yes	Yes	Yes
Backplane	Yes	Yes	Yes	Yes	Yes
Automatic Firmware Update	-	Yes	-	-	-

Table 9. Update – One-To-Many

Feature Name	LC-RS	CMC	DRACT	OME	DLCI for SCCM	DLCI for SCVMM
BIOS Firmware	Yes	Yes	-	Yes	Yes	Yes
PSU Firmware	Yes	-	-	Yes	Yes	Yes
Diagnostics (No Rollback)	Yes	Yes	-	Yes	Yes	Yes
Operating System Driver Packs (No Rollback)	Yes	Yes	-	Yes	Yes	Yes
NIC Firmware	Yes	Yes	-	Yes	Yes	Yes
iDRAC Firmware	Yes	Yes	Yes	Yes	Yes	Yes
RAID Controller Firmware	Yes	Yes	-	Yes	Yes	Yes
Lifecycle Controller (No Rollback)	Yes	Yes	-	Yes	Yes	Yes
Part Replacement (RAID and NIC)	Yes	-	-	-	Yes	Yes
CPLD	Yes	-	-	-	Yes	-
FC Cards	Yes	-	-	Yes	-	-
Backplane	Yes	-	-	Yes	-	-
Automatic Firmware Update	Yes	-	-	-	-	-

Monitor

Table 10. Monitor – One-To-One

Feature Name	OMSA	LC	BMC*	iDRAC (Rack, Tower, and Blades)
View and Export Current Inventory	-	Yes	-	Yes
View and Export Factory Shipped Inventory	-	Yes	-	Yes
System Health	Yes	-	-	Yes
Storage Health	Yes	-	-	Yes
Power Monitoring	Yes	-	-	Yes
Performance	Yes	-	-	Yes
Probe (Sensor) Monitoring	-	-	Yes	Yes
Components Information	Yes	-	-	Yes
Alerts	Yes	-	-	Yes
Platform Events	Yes	-	Yes	Yes
SNMP Traps	Yes	-	Yes	Yes
Lifecycle Log	Yes	-	-	Yes
POST Code Information	Yes	-	-	Yes
CMC Health Status	-	-	-	Yes
WWN/MAC Address	-	-	-	Yes
Reporting	Yes	-	-	Yes
Physical Topology	Yes	Yes	Yes	Yes
Logical Grouping	Yes	Yes	Yes	Yes
NICs Status and Statistics monitoring	Yes	No	-	Yes
CNAs Status and Statistics monitoring	Yes	No	-	Yes
FC-HBAs Status and Statistics monitoring	Yes	No	-	Yes

* BMC indicates Baseboard Management Controller

Table 11. Monitor – One-To-Many

Feature Name	LC-RS	CMC	Power Center	OME	SCOM SMP	Connection for HP, IBM, and Oracle	Connection for CA NSM	Connection for Nagios Core
View Current Inventory	Yes	Yes	-	Yes	Yes	-	-	-
Export Current Inventory	Yes	Yes	-	Yes	-	-	-	-
View and Export Factory Shipped Inventory	Yes	-	-	Yes	-	-	-	-
System Health	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes
Storage Health	Yes	-	-	Yes	Yes	Yes	Yes	-
Detailed Health	Yes	-	-	Yes	Yes	-	-	Yes
Components Information	Yes	-	-	Yes	Yes	-	-	Yes
Power Monitoring	Yes	Yes	Yes	No	Yes	-	-	-
Performance	Yes	Yes	-	No	Yes	-	-	-
Probe (Sensor) Monitoring	Yes	Yes	-	Yes	Yes	-	-	Yes
Alerts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Platform Events	Yes	Yes	-	Yes	Yes	-	-	-
Lifecycle Log	Yes	Yes	-	Yes	-	-	-	-
CMC Health Status	-	Yes	-	Yes	Yes	Yes	-	-
WWN/MAC Address	Yes	Yes	-	Yes	Yes	-	-	-
Reporting	Yes	Yes	Yes	Yes	Yes	-	-	-
Physical Topology	Yes	Yes	Yes	Yes	Yes	Yes	-	-
Logical Grouping	Yes	Yes	Yes	Yes	Yes	Yes	-	-

Maintain

Table 12. Maintain — One-To-One

Feature Name	OMSA	LC	BMC*	iDRAC (Rack, Tower, and Blades)	CMC	SUU	DRM
View Current Firmware Versions	-	Yes	-	Yes	Yes	Yes	Yes
Delete and Reset System	Yes	Yes	-	Yes	-	-	-
Backup and Export Server Profile	-	Yes	-	Yes	-	-	-
Restore Server Profile	-	Yes	-	Yes	-	-	-
Hardware Diagnostics	-	Yes	-	Yes	-	-	-
Manage Repositories	-	-	-	-	-	-	Yes
Maintenance, Warranty, and Depreciation	Yes	-	-	-	-	-	-
Power Control Functions	Yes	-	-	Yes	-	-	-
Tech Support Report	-	-	-	Yes	-	-	-
Last Crash Screen	Yes	-	-	Yes	-	-	-
Video Capture	-	-	-	Yes	-	-	-

* BMC indicates Baseboard Management Controller

Table 13. Maintain — One-To-Many

Feature Name	LC-Remote Services	CMC	OME	DLCI for SCCM
View Current Firmware Versions	Yes	Yes	Yes	Yes
Delete and Reset System	Yes	Yes	Yes	Yes
Backup and Export Server Profile	Yes	-	Yes	Yes
Restore Server Profile	Yes	-	Yes	Yes
Hardware Diagnostics	Yes	-	-	-
Maintenance, Warranty, and Depreciation	-	-	Yes	-
Power Control Functions	Yes	Yes	Yes	-
Task Scheduling	Yes	-	Yes	Yes
Tech Support Report	Yes	-	-	-