

Dell EMC Systems Management Overview Guide

Version 17.0

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.

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Contents

1 Dell EMC systems management	5
Dell EMC systems management offerings.....	5
Dell EMC Consoles.....	6
Automation Enablers.....	6
Integration with third-party consoles.....	7
Connections For Third-Party Consoles.....	7
Chassis and Server Managers.....	7
Dell EMC Update Utilities.....	7
Dell Resources.....	7
2 Systems Management Product Overview.....	9
Dell EMC Consoles.....	9
OpenManage Enterprise.....	9
OpenManage Essentials.....	11
Dell EMC Repository Manager.....	11
OpenManage Power Center.....	12
OpenManage Mobile.....	12
Chassis and server managers.....	14
Integrated Dell Remote Access Controller With Lifecycle Controller.....	14
Dell EMC OpenManage Enterprise—Modular Edition.....	15
Chassis Management Controller.....	15
iDRAC Service Module.....	16
iDRAC with Lifecycle Controller embedded management APIs.....	16
Dell EMC Update Utilities.....	17
Dell EMC Update Packages.....	17
Dell EMC Server Update Utility.....	17
Dell EMC System Update	18
Integration With Third-Party Consoles.....	18
Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Operations Manager(SCOM).....	18
Dell EMC OpenManage Integration for Microsoft System Center for System Center Configuration Manager.....	18
Dell EMC Server Deployment Pack for Microsoft System Center Configuration Manager.....	19
Dell EMC OpenManage Integration for Microsoft System Center for System Center Virtual Machine Manager.....	19
Dell EMC Server PRO System Center Management Pack for Microsoft System Center Virtual Machine Manager.....	20
Dell EMC OpenManage Integration for VMware vCenter.....	20
BMC Software.....	21
Connections For Third-Party Systems Management Consoles.....	21
Dell EMC OpenManage HPE OMi Operations Connector	21

Dell EMC Smart Plug-in for HPE Operations Manager for Windows.....	22
OpenManage Connection for IBM Tivoli Netcool OMNibus.....	22
OpenManage Connection for IBM Tivoli Network Manager IP Edition.....	22
OpenManage Plug-in for Nagios Core.....	23
OpenManage Plug-in for Nagios XI	23
3 Legacy — Dell EMC Hardware Management Tools.....	24
OpenManage Server Administrator.....	24
Baseboard Management Controller Management Utilities.....	24
Dell Remote Access Configuration Tool.....	24
OpenManage Deployment Toolkit	25
Dell IPMI Tool.....	25
4 Accessing documents from the Dell EMC support site.....	26
5 Contacting Dell EMC.....	27

Dell EMC systems management

Dell EMC delivers management solutions that help IT Administrators effectively deploy, update, monitor, and manage IT assets. OpenManage solutions and tools allow you to quickly respond to problems by helping them to manage Dell EMC 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, Chassis Management Controller and Consoles like OpenManage Enterprise, OpenManage Power Center, and tools like Repository Manager.

Dell EMC 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 EMC has connected or integrated the advanced management capabilities of Dell hardware into offerings from the industry's top systems management vendors and frameworks such as Ansible, thus making Dell EMC platforms easy to deploy, update, monitor, and manage.

The key tools for managing Dell EMC PowerEdge servers are iDRAC and the one-to-many OpenManage Enterprise (OME) console. The OpenManage Enterprise has all the key features of OpenManage Essentials to help manage the PowerEdge servers. OpenManage Enterprise helps the system administrators in complete lifecycle management of multiple generations of PowerEdge servers. Other tools such as Repository Manager, which allows simple yet comprehensive change management, and OpenManage Power Center can be added quickly and work seamlessly with iDRAC and OME.

OpenManage tools integrate with systems management framework from other vendors such as VMWare, Microsoft, and BMC Software. This allows you to utilize the skills of the IT staff to efficiently manage Dell EMC PowerEdge servers.

The four main pillars of Dell EMC systems management closely align with the issues and business challenges faced by many IT departments.

- Automating IT management
 - Dell EMC offers comprehensive automation management for reducing OPEX and increasing uptime and overall efficiency.
 - Comprehensive suite of tools to automate according to your needs.
- Management made simple
 - Simple but powerful tools for managing your Dell EMC servers
 - Built-in tools that streamline support engagements
 - Innovative at-the-box management features
- Secure by default
 - Dell EMC servers offer robust security defenses to prevent the next generation of malicious attacks
 - Security is designed deep into the hardware and firmware architecture for optimal protection
- Smarter infrastructure management
 - It offers a next generation 1-to-many console to manage your IT and server infrastructure
 - Embedded intelligence that is *infrastructure-aware* to optimize troubleshooting and deployment

This document provides an overview of the OpenManage Systems Management offerings to help IT administrators choose the appropriate tools to completely manage Dell EMC PowerEdge servers.

Dell EMC systems management offerings

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

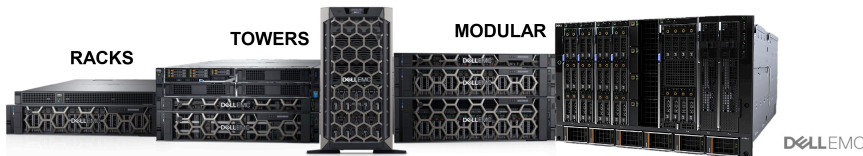
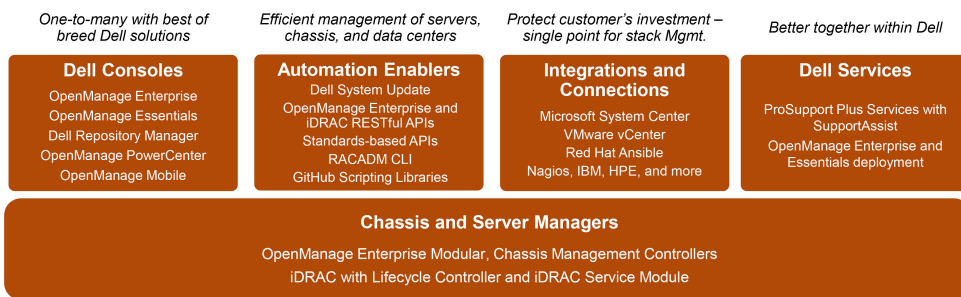
However, if you do not have a framework, Dell EMC provides in-house tools or tools from our partners. Dell EMC also offers professional services to install or train on any of the Dell EMC products and tools. All the solutions are centered on PowerEdge server hardware management featuring iDRAC with Lifecycle Controller.

Dell EMC OpenManage Enterprise automates the full span of server lifecycle management activities along with powerful RESTful APIs to script or integrate with your choice of frameworks. It helps in discovery, configuration, deployment, updates, and remediation. These tasks are performed within a single console that unifies management of tower, rack, and modular platforms. OpenManage Enterprise helps in standardizing and supporting IT management policies and practices.

For an interactive tool to see the best OpenManage tools for your datacenter environment, see online *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 EMC systems management offerings that are used in the Advisor tool.

Dell EMC OpenManage Portfolio

Simplifying server management through ease of use and automation



Dell EMC Consoles

- Dell EMC OpenManage Enterprise
- Dell EMC OpenManage Essentials (OME)
- Dell EMC Repository Manager DRM)
- Dell EMC OpenManage Power Center (OMPC)
- Dell EMC OpenManage Mobile (OMM)

Automation Enablers

- Dell System Update
- OpenManage Enterprise
- iDRAC RESTful APIs
- Standards-based APIs
- RACADM CLI
- GitHub Scripting Libraries

Integration with third-party consoles

- Dell EMC Server Deployment Pack for Microsoft System Center Configuration Manager (SCCM)
- Dell EMC Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (SCVMM)
- Dell EMC Server Management Pack Suite for Microsoft System Center Operations Manager (SCOM)
- Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Configuration Manager
- Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Virtual Machine Manager
- Dell EMC OpenManage Integration for VMware vCenter (OMIVV)
- BMC Software
 - iDRAC with BMC Software BladeLogic Server Automation (BSA)
 - OpenManage Server Administrator with BMC ProactiveNet Performance Management Suite

Connections For Third-Party Consoles

- Micro Focus Operations Bridge / Operations Manager I / Operations Manager (part of erstwhile HPE Software)
 - Dell EMC OpenManage HPE Operations Manager i (OMi) Operations Connector
 - Dell Smart Plug-In (SPI) for HP Operations Manager (HPOM) for Windows
- IBM
 - OpenManage Connection for IBM Tivoli Netcool/OMNIbus (ITNO)
 - OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition
- Nagios
 - OpenManage Plug-in for Nagios Core
 - OpenManage Plug-in for Nagios XI

Chassis and Server Managers

- Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller (LC)
- Dell EMC OpenManage Enterprise Modular (OME-M)
- Chassis Management Controller (CMC)
- iDRAC Service Module (iSM)

Dell EMC Update Utilities

- Dell System Update (DSU)
- Dell EMC Repository Manager (DRM)
- Dell EMC Update Packages (DUP)
- Dell EMC Server Update Utility (SUU)

Dell Resources

For additional information about white papers, videos, blogs, forums, technical material, tools, usage examples, and other information, visit the OpenManage page at www.dell.com/support/article/sln310664 or the following product pages:

- For general information and interactive graphics for Systems Management Products, see www.dell.com/support/article/sln310664 .

- For Integrated Dell Remote Access Controller (iDRAC) page, see www.dell.com/support/article/sln311300.
- For Lifecycle Controller (LC) page, see www.dell.com/support/article/sln311809.
- For OpenManage Ansible Modules page, see www.dell.com/support/article/sln310720.
- For OpenManage Essentials (OME) page, see www.dell.com/support/article/sln310714.
- For OpenManage Enterprise Modular page, see www.dell.com/OME-modular
- For OpenManage Mobile (OMM) page, see www.dell.com/support/article/sln310980.
- For OpenManage Integration for VMware vCenter (OMIVV), see www.dell.com/support/article/sln311238.
- For OpenManage Integration for Microsoft System Center (OMIMSSC), see www.dell.com/support/article/sln312177.
- For Dell EMC Repository Manager (DRM) page, see www.dell.com/support/article/sln312652.
- For Dell EMC System Update (DSU) page, see www.dell.com/support/article/sln310654.
- For Chassis Management Controller (CMC) page, see www.dell.com/support/article/sln311283.
- For OpenManage Connections for Partner Consoles page, see www.dell.com/support/article/sln312320.
- For OpenManage Power Center page, see www.dell.com/ompc.
- For OpenManage Server Administrator page, see www.dell.com/support/article/sln312492.
- For iDRAC Service Module (iSM) page, see www.dell.com/support/article/sln310557.

Systems Management Product Overview

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

Dell EMC Consoles

The following consoles help in monitoring, managing the infrastructure, and the Lifecycle management of the PowerEdge servers:

OpenManage Enterprise

OpenManage Enterprise is the next generation of OpenManage Essentials. It simplifies, centralizes, and automates the full span of server lifecycle management activities. It helps in discovery, configuration, deployment, updates, and remediation. These tasks are performed within a single console that unifies management of tower, rack, and modular platforms. OpenManage Enterprise helps in standardizing and supporting IT management policies and practices.

The OpenManage Enterprise console simplifies and strengthens the current capability of OpenManage Essentials in the following areas:

- Reduced time and effort that is required to manage small and large-scale IT environments using HTML5 GUI
- Simplified GUI workflow to provide a single management layer that unifies the management of PowerEdge tower, rack, and modular platforms
- Packaged and delivered as virtual appliance and supports ESXi, HyperV, and KVM
- Redesigned architecture on CentOS with the PostgreSQL database. Operating system and database license are no longer required
- Centralized user management with role-based access control
- Enabled with customer automation and solution integration using Northbound API
- Enhanced policy-driven management

Table 1. OpenManage Enterprise feature and benefits

Feature	Description	Benefits
Packaged as a virtual appliance	OpenManage Enterprise is readily deployable as a virtual appliance in ESXi, Hyper-V, and KVM hypervisors	Enables quick and easy deployment while gaining the benefits of virtualization, including the migration of the application from one physical server to another.
Discovery and Inventory on the IPv4 or IPv6 network	Discovery and inventory data center hardware up to 8000 devices.	Provides data-center visibility for IT administrators. Improves security and provides a management solution for customers no longer using IPv4.
Automatic device onboarding	The "make ready for management" step is automated for iDRAC during the device discovery and inventory process.	Minimizes human errors during the process of discovery and setup. Helps in getting the environment ready for on-going management.
Device level role-based access control (RBAC)	The scope of IT administration responsibilities can be assigned to specific groups of devices.	Helps ensure IT Admin workload balance and skill-set alignment.

Feature	Description	Benefits
Server single sign-on	Use of credential caching is employed to avoid further password prompts when IT administration perform management tasks or launch the iDRAC virtual console.	Delivers fast and seamless management across the PowerEdge server lifecycle while enabling management from a single level.
Monitoring and Event Processing	Monitoring system health for discovered devices and create event policy to dispatch hardware events.	Provides IT admin real time feedback for the health of their environment and enables automated responses through automation policy.
Comprehensive API	All product features are accessible from a new RESTful API that is conformant to the new popular Redfish standard.	Enables IT Admins to automate features and functions of OpenManage Enterprise through popular tools such as PowerShell and Python. It also allows them the flexibility of integrating OpenManage Enterprise into their existing IT processes.
Custom reports	IT administrators can use a powerful reporting engine to create customized reports.	Provides IT Admins rapid and easy access to specific device information.
Modern UI with elastic search capabilities	OpenManage Enterprise uses the modern HTML5 standard for its UI while enabling an elastic search engine that allows IT administrators to find anything in the console in a single search	Minimizes training time and maximizes efficiency by delivering quick results on searches involving devices, hardware and software inventory, features, functions, and so on. Also provides access from various browsers, and mobile devices.
Firmware compliance policies and updates	Firmware compliance policies allow IT administrators to establish one or more firmware baselines for groups of the PowerEdge servers in their environment. Selectively update firmware that is not compliant with the customer defined baselines.	Provides a simple method of enforcing minimum firmware levels for the PowerEdge servers that eliminates human error and minimizes downtime. Reinforces security by enabling customers to stay current with the firmware recommended by Dell EMC.
Configuration compliance policies	Configuration compliance policies allow IT Administrators to establish one or more configuration baselines for groups of the PowerEdge servers in their environment.	Enables a simple method to monitor the PowerEdge servers against an established baseline. Helps in enforcing security standards and ensuring management consistency across server BIOS, RAID, network and the iDRAC settings.
Bare-metal server deployment	Automate server HW configuration deployment to a bare-metal PowerEdge server and kick off unattended OS installation process.	Saves time and relies less on local IT Administrators for provisioning and configuring PowerEdge server hardware in a reliable and consistent manner.
Custom Template Edit	Edit the deployment template attributes by using: <ul style="list-style-type: none"> · Guided view · Advanced view 	Provides ability to control template editing via "guided view" for specific attributes, such as BIOS, boot sequence etc to avoid human error. Granular control for <i>sophisticated</i> users via the "advanced view" template editing
Support for MX-series	Support for discovery, inventory, configuration compliance and remediation of MX7000 chassis-as a standalone chassis and as a lead chassis in an Multi Chassis Management (MCM) group.	Provides unified support for rack, blades, chassis from a single choice of console for our customer
Stateless Deployments and virtual Identity management	You can assign virtual identities to servers and perform stateless deployment.	Stateless deployments enable to create a server environment that is dynamic and

Feature	Description	Benefits
		flexible by automatically generating and assigning virtual identity attributes to the I/O interfaces of a server.
New Platform Support	Support for the latest 14th generation PowerEdge servers including the new blade servers of MX7000 chassis.	Provides unified support for multi-generational rack, blades, chassis from a single choice of console for our customer
OpenManage Enterprise RESTful API	REST API enhancements for network configuration, identity pool creation, device template configuration, and profile management	Helps customer script from higher-level frameworks to enable enhanced automation in a datacenter environment
Configuration Remediation	Remediation of a server config that has drifted against a defined baseline.	Helps keep datacenter in compliance to configuration standards

For more information, see www.dell.com/support/article/sln310714.

OpenManage Essentials

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

- Monitor health status and events for PowerEdge servers, EqualLogic or MD series storage, and PowerConnect and Force 10 switches.
- Provide hardware-level control and management for PowerEdge server, blade system, and internal storage arrays.
- Link and Launch element management interfaces, such as, iDRAC, CMC, EQL group manager, and so on.
- Integrate with the following Dell EMC solutions:
 - Dell EMC Repository Manager: Builds customized server update baselines that OpenManage Essentials can use.
 - OpenManage Power Center: Optimize power consumption in the servers.
 - SupportAssist: Enables automatic hardware failure notification to be sent securely to Dell EMC technical support for intelligent analysis and diagnosis to optimize availability and reduce manual intervention. This solution is available as part of Dell EMC 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 14th 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 PowerEdge bare metal servers.
 - During a server operation, automatically detect and notify any server or chassis drift from a customer-defined baseline configuration.
 - 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 more information, see www.dell.com/support/article/sln312494.

Dell EMC Repository Manager

Dell EMC 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 updates are available
- Package the updates into different deployment format.

To automate the creation of baseline repositories, DRM provides advanced integration capabilities with iDRAC/LC, OpenManage Essentials, Chassis Management Controller, OpenManage Integration for VMware vCenter and OpenManage Integration for Microsoft System Center (OMIMSSC). Also, DRM packages updates into custom catalogs that can be used for deployment.

Dell EMC Repository Manager can create the following deployment tools:

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

For more information, see *Dell EMC Repository Manager User's Guide* available at www.dell.com/esmmanuals.

OpenManage Power Center

OpenManage Power Center (OMPC) is a console that provides monitoring and management at a one to many levels of server power and thermal. The features of OpenManage Power Center are:

- **Measure and manage power consumption and monitors thermal readings**—OMPC helps in gaining greater insight into a data center's energy usage through detailed measurement of energy consumption throughout a data center. OMPC gives administrator the ability to measure and manage the power consumption of up to 6,000 servers and track both short-term and long-term historical data.
- **Create and implement multiple usage policies**—OMPC simplifies implementation of management policies across a data center. When it is used with the 12th generation or later versions of the PowerEdge servers and an iDRAC Enterprise license, administrators can control across physical levels of a data center according to each row, rack, or group of servers. In addition, administrators can create custom logical groups and monitor or report on energy usage and costs on a group-by-group basis.
- **Reduce consumption during low-load hours**—OMPC helps administrators to save power by allowing management of a server room according to business needs. OMPC allows administrators to implement policies that reduce the power consumption when the demand on the systems is lower. It can also assign maximum power to the servers that run the most important applications.

For more information, see *OpenManage Power Center User's Guide* available at www.dell.com/ompc.

OpenManage Mobile

Dell EMC OpenManage Mobile (OMM) is a mobile application for managing servers and related devices from Android and iOS mobile devices. OMM enables IT administrators to perform a subset of server configuration, monitoring, and remediation tasks from anywhere and anytime.

Advantages of using OpenManage Mobile

- View inventory, monitor health status, and perform basic setup of servers, MX7000 chassis, and its sleds.
- Discover any server issues by signing up for proactive notifications from OpenManage Enterprise or Essentials console.
- View the server information about a large screen and get the equivalent of a large LCD display on the mobile device.
- Reduce the need for cumbersome crash carts by using a mobile device to access system console.
- Scan the iDRAC credentials stored in QR code for ease-of-use and faster first-time login.
- Batch update factory default iDRAC passwords for Dell EMC PowerEdge 14th generation servers.

Accessing PowerEdge servers from OpenManage Mobile

There are three ways OpenManage Mobile can access and manage the Dell EMC PowerEdge servers:

Access iDRAC at-the-server or MX7000 at-the-chassis

On 14th generation of the PowerEdge servers or MX7000: OMM can access PowerEdge 14th generation servers or MX7000 through Quick Sync 2 module. After it gets connected, IT administrators can configure IP addresses and BIOS settings, share Dell EMC SupportAssist reports, view server inventory, health status and logs, or power cycle a server.

Quick Sync 2 is supported on multiple 14th generation PowerEdge rack and tower servers, like PowerEdge R940, R940xa, R840, R740, R740xd, R640, R540, R440, R7425, R7415, R6415, and T640. It is also supported on MX7000 chassis.

On 13th generation of the PowerEdge servers: OMM can access PowerEdge 13th generation servers through the Quick Sync bezel. After connected, IT administrators can configure IP addresses, view server inventory, health status and logs, or power cycle a server.

Quick Sync bezel is supported on PowerEdge R730, R730xd, and R630 servers.

NOTE: For at-the-server access, you must install the Quick Sync 2 module or the Quick Sync bezel.

NOTE: For at-the-chassis access, you must install the Quick Sync 2 module on MX7000.

Access iDRAC or MX7000 remotely

OMM can access 12th, 13th, and 14th generation of the PowerEdge servers remotely over a secure, internal network from anywhere. After connected, IT administrators can configure IP addresses and BIOS settings, share Dell EMC SupportAssist reports, view server inventory, health status and logs, or power cycle a server.

When you access an MX7000 lead chassis remotely, you will automatically get access to any of the member chassis and sleds. Note that the access to MX7000 remotely happens through OpenManage Enterprise Modular running on that MX7000.

NOTE: Features vary by server-model and generation. To access iDRAC, OpenManage Enterprise, or OpenManage Essentials remotely, there is no additional hardware required other than the Android or IOS devices.

Access servers remotely through OpenManage Enterprise or OpenManage Essentials console

OMM can connect to the PowerEdge servers through the OpenManage Enterprise—3.0 or later or OpenManage Essentials Console—2.1 or later. IT administrators can monitor all systems-managed using OpenManage Essentials including Dell EMC chassis, servers, storage, networking, and firewall appliances and other OME-supported third party hardware. OMM can also receive proactive notifications from OME console.

Automation Enablers

- Dell System Update
- OpenManage Enterprise
- iDRAC RESTful APIs
- Standards-based APIs
- RACADM CLI
- GitHub Scripting Libraries

Dell Remote Access Controller Administration CLI

The Remote Access Controller Administration (RACADM) command-line utility provides a scriptable interface to perform inventory, configuration, update, and health status check of the 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 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, the Windows clients, and on Red Hat, SuSe, and Ubuntu Linux.

Using a text-based interface for all iDRAC with Lifecycle Controller functions, RACADM supports the viewing and changing of all server attributes. This includes BIOS, iDRAC, PERC, NIC, and HBA settings as well as server cooling and power-status and settings. RACADM also supports profile-based server configuration management, detailed hardware and firmware inventory, and access to server logs.

For more information, see the *RACADM command line Reference Guide for iDRAC* and *RACADM command line Reference Guide for CMC* available at www.dell.com/manuals.

OpenManage Ansible Modules

Dell EMC OpenManage Ansible Modules allow data center and IT administrators to use Red Hat Ansible to automate and orchestrate the provisioning, configuration, deployment, and update of PowerEdge Servers by using the management automation capabilities in-built into the iDRAC. Ansible is an automation tool that can configure systems, deploy software, and perform more advanced IT tasks such as continuous deployments or zero downtime rolling updates. With OpenManage Ansible Modules for PowerEdge servers, data center and IT administrators can rapidly deploy their infrastructure, change server configurations, and manage configuration drift against a known baseline

For more information, see www.dell.com/support/article/sln310720.

Chassis and server managers

Integrated Dell Remote Access Controller With Lifecycle Controller

The integrated Dell Remote Access Controller 9 (iDRAC9) with Lifecycle Controller delivers advanced, agent-free, local and remote server administration. Embedded in every PowerEdge server, iDRAC9 provides a secure means to automate a multitude of common management tasks. Because iDRAC is embedded in every PowerEdge server, there is no additional software to install; just plug in power and network cables, and iDRAC with Lifecycle Controller is ready to go. Even before installing an operating system (OS) or hypervisor, IT administrators have a complete set of server management features at their fingertips.

With iDRAC9 in place across the Dell EMC PowerEdge portfolio, the same IT administration techniques and tools can be applied throughout. This consistent management platform allows easy scaling of PowerEdge servers as an organization's infrastructure needs to grow. Customers will be able to use the iDRAC RESTful API for the latest in scalable administration methods of PowerEdge servers. With this API, iDRAC enables support for the Redfish standard and enhances it with Dell EMC extensions to optimize at-scale management of PowerEdge servers. By having iDRAC at the core, the entire OpenManage portfolio of Systems Management tools allows every customer to tailor an effective, affordable solution for any size environment.

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

Dell EMC OpenManage Enterprise—Modular Edition

The Dell EMC OpenManage Enterprise—Modular Edition (OME-Modular Edition) helps to transform how you manage the infrastructure and enable the business quickly. It is a unified web/RESTful API interface that manages all the nodes including compute, storage, and networking. This helps reduce costs and consolidates multiple tools for ease of access and monitoring. The simplified administration helps deploy and monitor at scale, from one to many chassis, with the support for remote management. The Agile and intelligent automation drives faster hardware rollouts and reduces repetitive tasks for accelerated lifecycle management.

It runs on the PowerEdge M9002m management module (MM) firmware. OME-Modular facilitates configuration and management of a stand-alone PowerEdge MX7000 chassis or group of MX7000 chassis from one Graphical User Interface (GUI). You can use OME-Modular to deploy servers and update firmware. You can also manage the overall health of the chassis and the chassis components such as compute sleds, networks, input or output modules (IOMs), and storage devices. OME-Modular also facilitates hardware enabling:

- Connectivity of management network
- Discovery, inventory
- Monitoring and power control operations and thermal functions

You can use OME-Modular to manage key workloads on the MX7000 platforms.

- Large and unstructured data and analytics
- Hyper converged and traditional workloads
- Database workloads
- Software defined storage
- HPC and performance workloads

The lead chassis in the Multi Chassis Management (MCM) enables you to perform the following tasks:

- Manage servers across multiple MX chassis.
- Deploy or update servers from lead chassis without launching the member chassis web interface.
- Manage fabric switch engines in fabric mode using the OME-Modular web interface.
- Manage alert log and actions.
- Manage virtual MAC/WWN identity pools.
- Deploy compute sleds easily using server profiles and templates.

OME-Modular offers simple and static roles such as the chassis administrator, compute manager, fabric manager, storage manager, and viewer roles while, OpenManage Enterprise offers static and dynamic groups with role-based access control (RBAC).

For more information about OME-Modular Edition, see www.dell.com/OME-modular.

Chassis Management Controller

The Chassis Management Controller is an embedded systems management hardware and software solution for managing multiple servers, I/O modules, and shared power or cooling using either a web interface or a command line interface.

The CMC uses 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:

- 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 multichassis 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.

- **PowerEdge VRTX**—The chassis is a revolutionary, easy-to-manage, remote, and office-optimized platform that converges 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 PowerEdge VRTX offers the ability to use the 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 EMC gives you the flexibility to use less expensive PCIe cards while still being managed through shared chassis management.
- **PowerEdge FX2/FX2s**—The FX2 enclosure allows servers and storage to share power, cooling, management, and networking. It includes redundant Power Supply Units (1100 W, 1600 W, 2000W, and 2400 W) 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 IO aggregators that can simplify cabling, improve East/West traffic within the server, and enable LAN/ SAN convergence—reducing cost and complexity.

For more information about CMC, see www.dell.com/support/article/sln311283.

iDRAC Service Module

This module complements iDRAC with monitoring and configuration information from the operating system(OS). You can also access a limited version of the iSM interface from the OS. You can enable and 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.
- Populate Windows Management Instrumentation (WMI) information.
- Integration with SupportAssist Collection.
- Use the Prepare to Remove option on a NVMe class PCIe SSD.
- Access iDRAC interfaces using host IP.
- Remote full power cycle.
- iDRAC GUI launcher from host OS (Windows OS only).
- 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 www.dell.com/support/article/sln311300.

iDRAC with Lifecycle Controller embedded management APIs

iDRAC with Lifecycle Controller provides a range of standards-based applications programming interfaces (APIs) that enable scalable and automated management of the 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). These APIs 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:

- **iDRAC RESTful API:** It provides a RESTful interface that expands upon the DMTF Redfish standard with the Dell EMC operations. It includes the RESTful server configuration, modular server feature support, and detailed OS networking inventory and status.
- **iDRAC RESTful API—with Redfish support:** In 2015, the DMTF Scalable platforms Management Forum published iDRAC RESTful API —with Redfish support. It is 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 EMC is a key contributor to the iDRAC RESTful API standard, acting as cochair of the SPMF, promoting the benefits of iDRAC RESTful API, and working to deliver those benefits within

industry-leading systems management solutions. iDRAC RESTful API 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 OData v4 protocol.

- **WSMan:** The Web Services For Management (WSMan) 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. WSMan 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) 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) helps in standardizing the management of network devices. SNMP allows commercial management consoles created for monitoring network switches and routers to also monitor X86 servers. 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 help in automating system management tasks and simplify API integration, Dell EMC provides the PowerShell and Python libraries and script examples using the iDRAC RESTful API with Redfish and WSMan interfaces. These libraries and examples are available in the Dell GitHub repository at <https://www.github.com/dell>. The iDRAC with Lifecycle controller pages offers a library of technical white papers detailing the use of the embedded management APIs. For more information, see www.dell.com/support/article/sln311300 and www.dell.com/support/article/sln311809.

Dell EMC Update Utilities

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

Table 2. Dell EMC Update Utilities

Product	Windows	Linux
Dell EMC Repository Manager	Yes	Yes
Dell EMC Update Packages	Yes	Yes
Dell EMC Server Update Utility	Yes	Yes
Dell EMC System Update	Yes	Yes

Dell EMC Update Packages

Dell EMC Update Packages (DUP) is a self-contained executable supported by Microsoft Windows or Linux that updates a component on a server and applications like OMSA and iSM.

DUPs can be executed in GUI or in CLI mode.

For more information, see *Dell EMC Update Packages User's Guide* available at www.dell.com/esmmanuals.

Dell EMC Server Update Utility

Dell EMC 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 applies the ones that are applicable.

SUU can be downloaded from [Dell EMC Server Update Utility](#) or a custom SUU can be created using Dell EMC Repository Manager (DRM). The SUU available on www.dell.com/esmmanuals 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 more information, see *Dell EMC Update Utility User's Guide* available at www.dell.com/esmmanuals.

Dell EMC System Update

Dell EMC System Update (DSU) is CLI optimized application used to distribute the Dell EMC PowerEdge server updates for Linux and Microsoft Windows operating systems. DSU is a script optimized tool, that provides enhanced ease of use, automation and flexibility. DSU works on a wide range of operating systems, including RHEL, SLES, Ubuntu, and Windows Server.

NOTE: DSU v1.4 and higher has been enhanced to facilitate the creation of Smart bootable ISO.

For more information, see www.dell.com/support/article/sln310654.

Integration With Third-Party Consoles

The Dell plug-ins are:

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

Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Operations Manager(SCOM)

Dell EMC OpenManage Integration for Microsoft System Center Operations Manager(SCOM) with the Dell EMC Server Management Pack suite helps you to discover, monitor and accurately depict the status of the following systems on a defined network segment:

- Dell EMC PowerEdge Servers, Integrated Dell Remote Access Controllers (iDRAC)
- Dell EMC Chassis Management Controller (CMC)
- OpenManage Enterprise - Modular Edition (OME-M)
- Dell EMC PowerVault NX NAS Storage Array
- Dell EMC Network Switches

The management packs provide Dell-specific views that you can use to observe and drill down the system status in a defined network environment. Synchronization of all supported Dell EMC devices that are discovered within the enrolled Operations Manager console

For more information, see *Microsoft System Center Operations Manager Server Management Pack User's Guide* available at www.dell.com/esmmanuals.

Dell EMC OpenManage Integration for Microsoft System Center for System Center Configuration Manager

Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Configuration Manager provides agent-free, operating system and hypervisor agnostic configuration, OS deployment, and firmware updates for PowerEdge servers. Automated

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

For more information, see *Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Configuration Manager User's Guide* available at www.dell.com/esmmanuals.

Dell EMC Server Deployment Pack for Microsoft System Center Configuration Manager

Dell EMC 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.

- ① **NOTE: DTK will not be supported on future platforms beyond the current 14th generation of Dell PowerEdge servers. DTK is sustained for current and earlier supported platforms until those platforms pass their end of support life (EOSL) threshold.**
- ① **NOTE: The Server Deployment Pack for Microsoft System Center Configuration Manager (SCCM) is getting deprecated. If you are using Server Deployment Pack for Microsoft SCCM, it is recommended to use Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Virtual Machine Manager.**

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

Dell EMC OpenManage Integration for Microsoft System Center for System Center Virtual Machine Manager

Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Virtual Machine Manager helps to automate and simplify hardware configuration and OS deployment.

It helps in:

- Hardware configuration
- OS deployment
- Hypervisor deployments
- Cluster deployments
- Repurposing of supported Dell EMC PowerEdge servers
- Automated Cluster Deployment of Dell EMC Microsoft Storage Spaces Direct Ready Nodes [S2D Ready Nodes]
- Simplified Lifecycle Management that includes the Cluster Aware Firmware Update capabilities

By using OpenManage Integration for Microsoft System Center (OMIMSSC), you can do the following:

- Using Update Center for a simplified, and enhanced experience to achieve multistep workflow in a single window.
- Automatically group 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 OpenManage Integration for Microsoft System Center (OMIMSSC) appliance.
- Installing as a Virtual Appliance (software model) for a simplified implementation and initial configuration with SCVMM.
- Checking the 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 OpenManage Integration for Microsoft System Center (OMIMSSC) appliance.
- Discovering unassigned PowerEdge servers manually while using static IP for the iDRAC with LC network.
- Viewing key inventory details of discovered servers, which help 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 that are 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 data logs of jobs and tasks that are performed within the DLCI appliance.
- Using Active Directory credentials for authentication and access to iDRAC/LC.
- Automating the S2D cluster deployment on bare-metal Dell EMC Ready Nodes Servers in SCVMM environment.
- Performing Cluster Aware Firmware Update from pre-validated solution catalog
- Using precanned operational templates for S2D ready nodes
- Automating Logical Switch and Logical Network
- Performing compliance check for servers with operational template before deployment.
- Simplifying End to End deployment with 3-step process - Discovery, Logical Switch, and Deploying Cluster.

For more information, see *Dell EMC OpenManage Integration for Microsoft System Center (OMIMSSC) for System Center Virtual Machine Manager User's Guide* available at www.dell.com/esmmanuals.

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

Dell EMC 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 servers that host virtual workloads running on Microsoft Hyper-V. Remedial actions can be quickly implemented if a system is compromised.

For more information, see *Dell EMC server PRO Management Pack for Microsoft System Center Virtual Machine Manager User's Guide* available at www.dell.com/esmmanuals.

Dell EMC OpenManage Integration for VMware vCenter

The Dell EMC OpenManage Integration for VMware vCenter (OMIVV) allows you to monitor, provision, and manage PowerEdge server hardware and firmware. You can perform these tasks through a dedicated Dell EMC menu that can be 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 server environment.

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

You can manage and monitor Dell EMC hardware within the virtualized environment.

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

- Deploying enhanced options

For more information, see www.dell.com/support/article/sln311238.

BMC Software

Dell EMC, along with BMC Software, servers, storage and network management functionality with the BMC Software's process and datacenter automation products. Dell and BMC Software's partnership helps to ensure that Dell EMC and BMC Software-based IT infrastructure and services provide the highest level of datacenter and business services manageability. The integration between Dell EMC and BMC Software products is highlighted by Dell EMC's own IT organization; BMC Software helps Dell EMC IT automate key processes and accelerate responsiveness by deploying multiple BMC Software solutions.

For more information, see *The combined power of BMC and Dell* available at i.dell.com/sites/doccontent/shared-content/data-sheets/en/Documents/The_Combined_Power_of_BMC_and_Dell.pdf

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 3. Connections For Third-Party Consoles

Vendor	Product	OpenManage Connection for Third-Party console	Windows	Linux	ESXi
Micro Focus	Operations Manager (OM) for Windows	OpenManage Smart Plug-in (SPI) for HPE Operations Manager for Windows i NOTE: Use Dell EMC License Manager for managing licenses and licensable features available with Smart Plug-in.	Yes	-	Yes
	Operations Manager i (OMi) for Windows	Dell EMC OpenManage HPE OMi Operations Connector i NOTE: HPE Operations Bridge / Operations Manager i (OMi) / Operations Manager are now part of Micro Focus	Yes	-	Yes
IBM	Tivoli Netcool / OMNibus	OpenManage Connection for IBM Tivoli Netcool/OMNibus (ITNO)	Yes	Yes	Yes
Nagios	Nagios-Core	OpenManage Plug-in for Nagios Core	-	Yes	Yes
	Nagios-XI	OpenManage Plug-in for Nagios XI	-	Yes	Yes

Dell EMC OpenManage HPE OMi Operations Connector

The Dell EMC OpenManage HPE OMi Operations Connector provides capabilities to integrate the Dell EMC OpenManage Essential (OME) with Micro Focus Operations Manager i (OMi). The Operations Connector for OME helps system and IT administrators to get a comprehensive view of Dell EMC devices in a data center by collecting the systems management data about the events and topology from OME, and transferring it to OMi. It also supports web console launch of OME directly from the Micro Focus OMi environment to perform further troubleshooting, configuration, and management activities for Dell EMC devices.

NOTE: HPE Operations Bridge / Operations Manager i (OMi) / Operations Manager are now part of Micro Focus

For more information, see the *Dell EMC HPE Operations Manager i (OMi) Operations Connector User's Guide* available at www.dell.com/esmmanuals.

Dell EMC Smart Plug-in for HPE Operations Manager for Windows

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

- PowerEdge servers
- iDRAC
- Dell EMC Modular infrastructure
- Dell EMC Storage arrays
- Dell EMC Networking devices
- Dell EMC Workstation

You can also launch one-to-one Dell EMC device consoles (such as iDRAC web console) as well as one-to-many Dell EMC tools (such as OpenManage Essentials) from within the OM console to perform configuration, troubleshooting, and other system management activities on Dell EMC devices.

NOTE: HPE Operations Bridge / Operations Manager i (OMi) / Operations Manager are now part of Micro Focus.

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

OpenManage Connection for IBM Tivoli Netcool OMNIbus

OpenManage Connection for IBM Tivoli Netcool/OMNIbus provides agent-free (out-of-band) monitoring of PowerEdge servers, 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 more information, see the *OpenManage Connection for IBM Tivoli Netcool/OMNIbus User's Guide* available at www.dell.com/esmmanuals.

OpenManage Connection for IBM Tivoli Network Manager IP Edition

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.

- PowerEdge servers
- iDRAC
- Dell EMC Modular Infrastructure
- Dell EMC Storage Arrays

- Dell EMC Networking

Along with the OpenManage Connection for IBM Tivoli Netcool/OMNIBus, it can also provide event monitoring and auto-correlation for quicker fault detection and solution. You 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 EMC devices.

For more information, see the *OpenManage Connection for IBM Tivoli Network Manager IP Edition User's Guide* available at www.dell.com/esmmanuals.

OpenManage Plug-in for Nagios Core

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

- PowerEdge Servers
- iDRAC
- Dell EMC Modular Infrastructure
- Dell EMC Storage Arrays
- Dell EMC Networking devices

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

For more information, see the *OpenManage Plug-in for Nagios Core User's Guide* available at www.dell.com/esmmanuals.

OpenManage Plug-in for Nagios XI

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

- PowerEdge Servers
- iDRAC
- Dell EMC Modular Infrastructure
- Dell EMC Storage Arrays
- Dell EMC Networking devices

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

For more information, see the *OpenManage Plug-in for Nagios XI User's Guide* available at www.dell.com/esmmanuals.

Legacy — Dell EMC Hardware Management Tools

Topics:

- [OpenManage Server Administrator](#)
- [Baseboard Management Controller Management Utilities](#)
- [Dell Remote Access Configuration Tool](#)
- [OpenManage Deployment Toolkit](#)
- [Dell IPMI Tool](#)

OpenManage Server Administrator

The 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). It can communicate using following interfaces - GUI, WMI, SNMP and CLIView system configuration, health, and performance. Use Server Administrator 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.

For more information, see the *OpenManage Server Administrator Storage Management User's Guide* available at www.dell.com/esmmanuals.

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 *Baseboard Management Controller Management Utilities User's Guide* available at www.dell.com/esmmanuals.

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 www.dell.com/esmmanuals.

OpenManage Deployment Toolkit

NOTE: This tool is deprecated.

The OpenManage Deployment Toolkit includes a set of utilities for configuring and deploying 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

The OpenManage Deployment Toolkit (DTK) along with the associated tools and capabilities will be deprecated for version 6.0.1 and later:

- Redundant Array of Independent Disks Configuration (RAIDCFG) Utility
- System Configuration (SYSCFG) Utility
- ELI tool
- Utility Partition (UPINIT)

It is recommended to use the RACADM Command Line (CLI) as a replacement for the RAIDCFG and SYSCFG utilities. For more information on downloading RACADM, see www.dell.com/support.

NOTE: DTK is not supported on future platforms beyond the current 14th generation of Dell PowerEdge Servers. DTK will be sustained for current and earlier supported platforms until those platforms pass their end of support life (EOSL) threshold. The last release for DTK is the version 6.3. The end of support for DTK will coincide with the end-of-support-life (EOSL) date for PowerEdge 14th generation platforms.

For more information, see the *Dell EMC OpenManage Deployment Toolkit User's Guide* available at www.dell.com/esmmanuals.

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 www.dell.com/esmmanuals.

Accessing documents from the Dell EMC support site

You can access the required documents using the following links:

- For Dell EMC Enterprise Systems Management documents — www.dell.com/esmmanuals
- For Dell EMC OpenManage documents — www.dell.com/openmanagemanuals
- For Dell EMC Remote Enterprise Systems Management documents — www.dell.com/esmmanuals
- For iDRAC and Dell Lifecycle Controller documents — www.dell.com/idracmanuals
- For Dell EMC OpenManage Connections Enterprise Systems Management documents — www.dell.com/esmmanuals
- For Dell EMC Serviceability Tools documents — www.dell.com/serviceabilitytools
- a Go to www.dell.com/support.
- b Click **Browse all products**.
- c From **All products** page, click **Software**, and then click the required link from the following:
 - **Analytics**
 - **Client Systems Management**
 - **Enterprise Applications**
 - **Enterprise Systems Management**
 - **Public Sector Solutions**
 - **Utilities**
 - **Mainframe**
 - **Serviceability Tools**
 - **Virtualization Solutions**
 - **Operating Systems**
 - **Support**
- d To view a document, click the required product and then click the required version.
- Using search engines:
 - Type the name and version of the document in the search box.

Contacting Dell EMC

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell EMC 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 EMC for sales, technical support, or customer service issues, see www.dell.com/contactdell.