Dell EMC OpenManage Installation Guide — Linux

Version 9.1

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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

Introduction

This topic provides information on:

- Installing Server Administrator on managed systems.
- Installing and using the Remote Enablement feature.
- Managing remote systems using Server Administrator Web Server.
- Configuring the system before and during a deployment or upgrade.

ⓘ **NOTE: If you are installing management station and managed system software on the same system, install identical software versions to avoid system conflicts.**

Topics:

What's new in this release

- Support for servers from 11th generation till 14th generation.
- Supported network cards:
  - - Emulex LightPulse LPe31000-M6-D 1-Port 16Gb Full Height Fibre Channel Adapter
  - Emulex LightPulse LPe31000-M6-D 1-Port 16Gb Low Profile Fibre Channel Adapter
  - Emulex LightPulse LPe31002-M6-D 2-Port 16Gb Full Height Fibre Channel Adapter
  - Emulex LightPulse LPe31002-M6-D 2-Port 16Gb Low Profile Fibre Channel Adapter
  - Mellanox ConnectX-4 Dual Port EDR VPI QSFP28 Low Profile Adapter
  - Mellanox ConnectX-4 Dual Port EDR VPI QSFP28 Full Height Network Adapter
  - Mellanox ConnectX-4 Single Port EDR VPI QSFP28 Low Profile Adapter
  - Mellanox ConnectX-4 Single Port EDR VPI QSFP28 Full Height Network Adapter
  - Harbor Channel - Intel(R) Ethernet 25G 2P XXV710 Adapter (25GBE PCIe Adapter)
  - QLogic Duluth - FH – 10Gb Dual Port BT Arrowhead based Converged Network Adapter QL41162HFRJ-DL-BK (without optics)
  - QLogic Duluth – LP - 10Gb Dual Port BT Arrowhead based Converged Network Adapter QL41162HLRJ-DL-BK (without optics)
  - QLogic Dunkirk - 10- FH – 10Gb Dual Port SFP Arrowhead based Converged Network Adapter QL41112HFCU-DL-BK (without optics)
  - QLogic Dunkirk - 10– LP - 10Gb Dual Port SFP Arrowhead based Converged Network Adapter QL41112HLCU-DL-BK (without optics)
  - QLogic Dunkirk - FH – 10/25Gb Dual Port SFP28 Arrowhead based Converged Network Adapter QL41262HFCU-DL-BK (without optics)
  - QLogic Dunkirk – LP - 10/25Gb Dual Port SFP28 Arrowhead based Converged Network Adapter QL41262HLCU-DL-BK (without optics)
  - QLogic Dundee - FH – 10Gb Quad Port BT Arrowhead based Converged Network Adapter QL41164HFRJ-DL (without optics)
  - QLogic Dundee – LP – 10Gb Quad Port BT Arrowhead based Converged Network Adapter QL41164HLRJ-DL (without optics)
  - QLogic Delray - FH – 10Gb Quad Port SFP Arrowhead based Converged Network Adapter QL41164HFCU-DL (without optics)

- QLogic Delray – LP - 10Gb Quad Port SFP Arrowhead based Converged Network Adapter QL41164HLCU-DL (without optics)
- QLogic Dardanelle – rNDC - 10/25Gb Dual Port SFP28 Arrowhead based Converged Network Adapter QL41262HMCU-DL (without optics)
- QLogic Darwin – rNDC - 10Gb Dual Port BT Arrowhead based Converged Network Adapter QL41164HMRJ-DL (without optics)
- QLogic Dresden – rNDC - 10Gb Dual Port SFP Arrowhead based Converged Network Adapter QL41164HMCU-DL (without optics)
- QLogic Dartmouth – rNDC – 1Gb & 10Gb 2+2 Port BT Arrowhead based Converged Network Adapter QL41264HMCU-DL-BK (without optics)
- QLogic Dunedin – rNDC – 1Gb & 10Gb 2+2 Port SFP Arrowhead based Converged Network Adapter QL41264HMCURJ-DL-BK (without optics)
- Supported operating systems:
  - Red Hat Enterprise Linux 7.4
  - SUSE Linux Enterprise Server 12 SP3
  - Ubuntu 16.04.3 LTS (Xenial Xerus) from PowerEdge 14G servers onwards
  - ESXi 6.5 U1
- Supported web browsers:
  - Google Chrome version 57
  - Google Chrome version 58
  - Mozilla Firefox version 52
  - Mozilla Firefox version 53
  - Internet Explorer 11
  - Internet Explorer 10
  - Safari version 10.x
- Supported features:

Server Administrator

- Support for Java Runtime Environment 8 Update 131.
- Upgraded Tomcat version to 8.5.15.
- Minimum supported TLS version is TLSv1.1.
- Encription Ciphers list has been updated as per OWASP Apache Tomcat Security Standards.
- Supports NVDIMM (Non Volatile DIMM) monitoring in PowerEdge 14G servers.
- Supports System Configuration Lockdown Mode in PowerEdge 14G servers.
- Supports "Full Power Cycle" capability under BIOS settings which enables DC Power cycle followed by AC Power cycle of the auxiliary components (includes iDRAC, CPLD, etc.).
- Server Administrator Shared Service which is used to invoke the Inventory Collector would be disabled by default during installation of Server Administrator. In order to invoke Inventory Collector explicitly customer should enable it through Server Administrator command line interface.
- Server Administrator ESXi VIB leverages the ESXi OS Live installation capability so that a host OS reboot will not be required post installation or removal of the VIB.

Storage Services

- Support for "Prepare To Remove" operation for PCIe SSD devices through PERC S140 controller.
- Support for setting the critical threshold and warning threshold for available spare and alert generation.
- Support for the following Intel Cliffdale devices are added: P4500, and P4600
- Support for CAPONE V2 (BOSS) device.
- Support for Ubuntu 16.04.3 operating system.

ⓘ **NOTE: For the list of supported operating systems and Dell servers, see the *Dell EMC OpenManage Software Support Matrix* in the required version of OpenManage Software at dell.com/openmanagemanuals.**

ⓘ **NOTE: For more information about any features, see the *Dell EMC OpenManage Server Administrator Online Help*.**

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Software Availability

The Server Administrator software can be installed from:

- Systems Management Tools and Documentation software
- Support site — For more information, see **dell.com/support/home**.
- VMware Update Manager (VUM) — For more information, see **http://vmwaredepot.dell.com/**.
- Linux Repository using YUM, rug, or zypper — For more information, see Linux Repository.

Systems Management Software

Systems management software is a suite of applications that enables you to manage the systems with proactive monitoring, notification, and remote access.

Systems management software comprises of the ISO Dell EMC Systems Management Tools and Documentation image

ⓘ **NOTE: For more information on these ISO images, see** *Dell EMC Systems Management Tools And Documentation Installation Guide.*

Server Administrator Components On A Managed System

The setup program provides the following options:

- Custom Setup
- Typical Setup

The custom setup option enables you to select the software components you want to install. The table lists the various managed system software components that you can install during a custom installation.

Table 1. Managed System Software Components

Component	What is installed	Deployment Scenario	Systems to install on
Server Administrator Web Server	Web-based Systems Management functionality that enables you to manage systems locally or remotely.	Install only if you want to remotely monitor the managed system. You do not require physical access to the managed system.	Any system. For example, laptop or desktops.
Server Instrumentation	Server Administrator Instrumentation Service	Install to use the system as the managed system. Installing Server Instrumentation and the Server Administrator Web Server installs Server Administrator. Use Server Administrator to monitor, configure, and manage the system.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix* at **dell.com/support/manuals.**

Component	What is installed	Deployment Scenario	Systems to install on
		ⓘ **NOTE: If you choose to install only Server Instrumentation, you must also install one of the Management Interfaces or the Server Administrator Web Server.**	
Storage Management	Server Administrator Storage Management	Install to implement hardware RAID solutions and configure the storage components attached to the system. For more information on Storage Management, see the *Dell EMC OpenManage Server Administrator Storage Management User's Guide* in the docs directory.	Only those systems on which you have installed Server Instrumentation or the Management Interfaces.
Command Line Interface (Management Interface)	Command Line Interface of Server Instrumentation	Install to provide local and remote system management solutions to manage Server and Storage instrumentation data using command-line interfaces.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.
WMI (Management Interface)	Windows Management Instrumentation Interface of Server Instrumentation	Install to provide local and remote system management solutions to manage Server data using WMI protocol.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.
SNMP (Management Interface)	Simple Network Management Protocol Interface of Server Instrumentation	Install to provide local and remote system management solutions to manage Server and Storage instrumentation data using SNMP protocol.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.
Remote Enablement (Management Interface)	Instrumentation Service and CIM Provider	Install to perform remote systems management tasks. Install Remote Enablement on one system and Server Administrator Web Server on another system. You can use the system with the Server Administrator to remotely monitor and manage the systems which have Remote Enablement installed.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.
Operating System Logging (Management Interface)	Operating System Logging	Install to allow local system management-specific events logging on the operating system for Server and Storage instrumentation. On systems running Microsoft Windows, use the Event Viewer to locally view the collected events.	Supported systems. For a list of supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.
iDRAC Command Line Tools	Hardware application programming interface and	Install to receive email alerts for warnings or errors related to voltage, temperature, and fan	Only those systems on which you have installed Server

Component	What is installed	Deployment Scenario	Systems to install on
	iDRAC (depending on the type of the system)	speed. Remote Access Controller also logs event data and the most recent crash screen (available only on systems running Windows operating system) to help you diagnose the probable cause of a system crash.	Instrumentation or Management Interface.

Security Features

Systems management software components provide these security features:

- Support for Network Information Services (NIS), Winbind, Kerberos, and Lightweight Directory Access Protocol (LDAP) authentication protocols for Linux operating systems.
- Role-based authority that allows specific privileges to be configured for each user.

  ⓘ NOTE: Applicable only for systems running Red Hat Enterprise Linux, SUSE Linux Enterprise Server, or VMware ESXi.

- User ID and password configuration through the web-based interface or the command line interface (CLI), in most cases.
- SSL encryption (**Auto Negotiate** and **128-bit or higher**).

ⓘ NOTE: Telnet does not support SSL encryption.

- Session time-out configuration (in minutes) through the web-based interface.
- Port configuration to allow systems management software to connect to a remote device through firewalls.

ⓘ NOTE: For information about ports that the various systems management components use, see the User Guide for that component.

For information about the Security Management, see the *Dell EMC OpenManage Server Administrator User's Guide* at **dell.com/openmanagemanuals**.

Other Documents You Might Need

In addition to this guide, for more information, access the following guides.

- The *Lifecycle Controller 2 Version 1.00.00 User's Guide* provides information on using the Lifecycle Controller.
- The *Dell EMC OpenManage Management Console User's Guide* provides information about installing, configuring, and using Management Console.
- The *Systems Build and Update Utility User's Guide* provides information on using the Systems Build and Update Utility.
- The *Dell EMC OpenManage Systems Software Support Matrix* provides information about the various systems, the operating systems supported by these systems, and the systems management components that can be installed on these systems.
- The *Dell EMC OpenManage Server Administrator User's Guide* describes the installation and use of Server Administrator.
- The *Dell EMC OpenManage Server Administrator SNMP Reference Guide* documents the SNMP management information base (MIB).
- The *Dell EMC OpenManage Server Administrator CIM Reference Guide* documents the Common Information Model (CIM) provider, which is an extension of the standard management object format (MOF) file. This guide explains the supported classes of management objects.
- The*Dell EMC OpenManage Server Administrator Messages Reference Guide* lists the messages that are displayed on the Server Administrator home page Alert log, or on the operating system's event viewer. This guide explains the text, severity, and cause of each alert message that the Server Administrator displays.
- The *Dell EMC OpenManage Server Administrator Command Line Interface Guide* documents the complete command line interface for Server Administrator, including an explanation of CLI commands to view system status, access logs, create reports, configure various component parameters, and set critical thresholds.
- The *Remote Access Controller User's Guide* provides complete information about installing and configuring a DRAC controller and using DRAC to remotely access an inoperable system.

- The *Integrated Remote Access Controller User's Guide* provides complete information about configuring and using an integrated Remote Access Controller to remotely manage and monitor the system and its shared resources through a network.
- The *Update Packages User's Guide* provides information about obtaining and using the Update Packages for Windows and Linux as part of the system update strategy.
- The *Server Update Utility User's Guide* provides information on using the Server Update Utility.
- The *Dell EMC OpenManage Systems Management Tools and Documentation* software contains readme files for applications found on the media.

ⓘ **NOTE: If the product does not perform as expected or you do not understand a procedure described in this guide, see Getting Help in the system's Hardware Owner's Manual.**

Preinstallation Setup

Ensure that you perform the following before installing Server Administrator:

- Read the installation instructions for the operating system.
- Read the Installation Requirements to ensure that the system meets or exceeds the minimum requirements.
- Read the applicable readme files and the *Systems Software Support Matrix.*
- Close all applications running on the system before installing the Server Administrator applications.

  On systems running the Linux operating system, ensure that all operating system RPM Package Manager (RPM) packages required by the Server Administrator RPMs are installed. If the system had VMware ESX factory-installed, Red Hat Enterprise Linux, or SUSE Linux Enterprise Server, see the Dependent RPMs for Remote Enablement section for information on any RPMs that you need to manually install prior to installing managed system software. Typically, manual installation of RPMs is not required.

Topics:

- Installation Requirements
- Configuring SNMP Agents
- Remote Enablement Requirements
- Winbind Configuration For openwsman And sfcb For Red Hat Enterprise Linux Operating Systems
- Workaround For The Libssl Issue
- Winbind Configuration For openwsman And sfcb For SUSE Linux Enterprise Server Operating System

Installation Requirements

This section describes the general requirements of the Server Administrator and provides information on supported operating systems and web browsers.

ⓘ | **NOTE: Prerequisites specific to an operating system are listed as part of the installation procedures.**

Supported Operating Systems And Web Browsers

For information on supported operating systems and web browsers, see the *Dell EMC OpenManage Systems Software Support Matrix* .

ⓘ | **NOTE: Ensure that the web browser is configured to bypass the proxy server for local addresses.**

System Requirements

Install Server Administrator on each system to be managed. You can manage each system running Server Administrator locally or remotely through a supported web browser.

Managed System Requirements

- One of the supported operating systems and web browser.
- Minimum 2GB RAM.
- Minimum 512MB free hard drive space.
- Administrator rights.
- TCP/IP connection on the managed system and the remote system to facilitate remote system management.
- One of the Supported Systems Management Protocol Standards.
- Monitor with a minimum screen resolution of 800 x 600. The recommended screen resolution is at least 1024 x 768.
- The Server Administrator Remote Access Controller service requires remote access controller (RAC) installed on the managed system. See the relevant *Remote Access Controller User's Guide* for complete software and hardware requirements.
- The Server Administrator Storage Management Service requires Server Administrator installed on the managed system. See the *Dell EMC OpenManage Server Administrator Storage Management User's Guide* for complete software and hardware requirements.

Related Link:

Supported Operating Systems and Web Browsers

Supported Systems Management Protocol Standards

Install a supported systems management protocol on the managed system before installing the management station or managed system software. On supported Linux operating system, systems management software supports:

- Common Information Model (CIM)/Windows Management Instrumentation (WMI)
- Simple Network Management Protocol (SNMP)

Install the SNMP package provided with the operating system. If SNMP is installed post Server Administrator installation, restart Server Administrator services.

(i) **NOTE: For information about installing a supported systems management protocol standard on the managed system, see the operating system documentation.**

The following table shows the availability of the systems management standards for each supported operating system.

Table 2. Availability of Systems Management Protocol by Operating Systems

Operating System	SNMP	CIM/WMI
Supported Red Hat Enterprise Linux operating system.	Install the SNMP package provided with the operating system.	Available. Install the CIM packages provided on the *Dell EMC OpenManage Systems Management Tools and Documentation* software - SYSMGMT\srvadmin\linux \RPMS\supportRPMS\opensource-components.
Supported SUSE Linux Enterprise Server operating system.	Install the SNMP package provided with the operating system.	Available. Install the CIM packages provided on the *Dell EMC OpenManage Systems Management Tools and Documentation* software - SYSMGMT\srvadmin\linux \RPMS\supportRPMS\opensource-components.

(i) **NOTE: It is recommended to install the SFCB, SFCC, OpenWSMAN, and CMPI-Devel packages from the operating system media, if available.**

Configuring SNMP Agents

The systems management software supports the SNMP systems management standard on all supported operating systems. The SNMP support may or may not be installed depending on the operating system and how the operating system was installed. An installed supported systems management protocol standard, such as SNMP, is required before installing the systems management software.

Configure the SNMP agent to change the community name, enable set operations, and send traps to a management station. To configure the SNMP agent for proper interaction with management applications, perform the procedures described in the *Dell EMC OpenManage Server Administrator User's Guide*.

Related Links:

- Installation Requirements
- Supported Systems Management Protocol Standards

Remote Enablement Requirements

The Remote Enablement feature is currently supported on:

- Red Hat Enterprise Linux
- Novell SUSE Enterprise Linux
- VMware vSphere (ESXi)

Dependent RPMs For Remote Enablement

If you choose to install the Remote Enablement feature, you have to install certain dependent RPMs and configure these RPMs before installing the feature. Install the following RPMs:

- **libcmpiCppImpl0**
- **libwsman1**
- **openwsman-server**
- **sblim-sfcb**
- **sblim-sfcc**

The dependent RPMs are available on the *Dell EMC OpenManage Systems Management Tools and Documentation* software at **srvadmin \linux\RPMS\supportRPMS\opensource-components\<OS>\<arch>**.

(i) **NOTE:** The SLES 12 WSMAN RPMs mentioned above do not work with OMSA DWS. You must upgrade the RPMs to SUSEopenwsman-server-2.4.11-2.18.x86_64.rpm ,libwsman1-2.4.11-2.18.x86_64.rpm,libwsman_clientpp1-2.4.11-2.18.x86_64.rpm or later.

(i) **NOTE:** On supported SLES 11 and above and Red Hat Enterprise Linux 6 and preceding operating systems, it is recommended that you install the RPMs from the operating system media, if available.

Installing Dependent RPMs

To install the dependent RPMs not available on the operating system media:

1. Make sure that Pegasus RPMs are uninstalled.
2. Check if the **openwsmand** and **sfcbd** binaries are already installed using make-install. Check by running the commands: **openwsman** or **sfcbd** or you can check the existence of the binaries in the **/usr/local/sbin** directory.
3. If the binaries are installed, uninstall these binaries.

4   Check for the required dependencies for the **openwsman** and **sfcbd** RPMs listed in the following table.

Table 3. Required Dependencies

Packages	Red Hat Enterprise Server	SUSE Linux Enterprise Server
Openwsman	OpenSSL LibXML Pkgconfig CURL Chkconfig Initscript SBLIM-SFCC	LibOpenSSL LibXML Pkg-config libCURL aaa_base aaa_base SBLIM-SFCC
SBLIM SFCC	CURL	LibCURL
SBLIM SFCB	zlib CURL PAM OpenSSL Chkconfig Initscript	zlib LibCURL PAM LibOpenSSL aaa_base aaa_base

5   Install the dependent RPMs. You can install the RPMs:

•   with a single command `rpm -ivh rpm1 rpm2 rpm3 rpm4 ... rpmN`

     or

•   individually

> ⓘ **NOTE: If you are installing RPMs individually, follow this sequence.**

```
rpm -ivh sblim-sfcb-x.x.x.rpm
rpm -ivh sblim-sfcc-x.x.x.rpm
```

> ⓘ **NOTE: Install the libwsman and openwsman client RPMs simultaneously as they have cyclic dependency.**

```
rpm -ivh libwsman1-x.x.x.rpm openwsman-client-x.x.x.rpm
rpm -ivh openwsman-server-x.x.x.rpm
```

Post Installation Configuration For Remote Enablement

This section details the steps to configure the dependent RPMs if you have installed the Remote Enablement feature.

The post-installation configuration script is available at **/opt/dell/srvadmin/etc/** on the server file system.

After installing all the dependent RPMs and the Remote Enablement feature, execute the **autoconf_cim_component.sh** script.

> ⓘ **NOTE: The Distributed Web Server (DWS) connection does not work properly, if you have installed the sblim-sfcb RPM from SUSE Linux Enterprise Server 11 SP3 operating system DVD. To resolve the connection issue, you must install the sblim-sfcb RPM either from SUSE Linux Enterprise Server 11 SP2 operating system DVD or from the *Dell EMC OpenManage Systems Management Tools and Documentation* software.**

Before executing the **autoconf_cim_component.sh** script, make sure that Systems Management is installed.

Execute the following command to configure **sfcb** and **openwsman** as per the default configurations: `./ autoconf_cim_component.sh`

> ⓘ **NOTE: To configure openwsman on the managed node to run on a different port, use the -p <*port*> option with autoconf_cim_component.sh. This is optional and by default the openwsman is configured to run on port 443.**

> (i) **NOTE: To successfully use openwsmand and sfcbd services on systems running the SUSE Linux Enterprise Server operating system, use the following commands:**
>
> - **openwsmand**
>
>   ```
>   #grep openwsmand /var/log/audit/audit.log | audit2allow -M mypol
>
>   #semodule -i mypol.pp
>   ```
>
> - **sfcbd**
>
>   ```
>   #grep sfcbd  /var/log/audit/audit.log | audit2allow -M mypol
>
>   #semodule -i mypol.pp
>   ```

Related Links:

Installing Managed System Software on Supported Linux and VMware ESX

Creating Server Certificate For WSMAN

You can either create a new certificate for WSMAN or reuse an existing certificate.

Creating A New Certificate

You can create a new server certificate for WSMAN by executing the **owsmangencert.sh** script located at **/etc/openwsman**. This script is provided by the **openwsman** RPM. Follow the steps in the wizard to create the server certificate.

Reusing An Existing Certificate

If you have a self-signed or CA-signed certificate, you can use the same certificate for the `openwsman` server by updating the `ssl_cert_file` and `ssl_key_file` values, grouped under `[server]` tag, in **/etc/openwsman/openwsman.conf** with the existing certificate values.

Configuring CRL For The openwsman Client

You need to configure the Certificate Revocation List (CRL) used by Server Administrator Web Server. To do this:

1   Mention a valid CRL file in **/etc/openwsman/openwsman_client.conf**.
2   If left blank, the CRL check is ignored.

> (i) **NOTE: CRL support is only present on SUSE Linux Enterprise Server version 11 and Red Hat Enterprise Linux Server. For other operating systems, contact the operating system vendor to provide the required CURL library with CRL support.**

Running sfcb And openwsman

Run `sfcb` and `openwsman`:

- `/etc/init.d/sfcb start`
- `/etc/init.d/openwsmand start`

> (i) **NOTE: On Red Hat Enterprise Linux 6, replace sfcb with sblim-sfcb.**

On Red Hat Enterprise Linux 6, for the **sblim-sfcb** and **openwsman** to start automatically after a reboot you need to change the run-levels using the `chkconfig` utility. For example, if you want to run `sblim-sfcb` in run-levels 3 and 5, use the following command:

```
#chkconfig sblim-sfcb on --level 35
```

ⓘ **NOTE: For more information on `chkconfig` and its usage, see the operating system documentation.**

The managed system is configured and is ready to be used by the Server Administrator Web Server.

Winbind Configuration For openwsman And sfcb For Red Hat Enterprise Linux Operating Systems

Follow the instructions mentioned below to configure openwsman and sfcb.

1   Back up these files:

   · **/etc/pam.d/openwsman**

   · **/etc/pam.d/sfcb**

   · **/etc/pam.d/system-auth**

2   Replace the content of **/etc/pam.d/openwsman** and **/etc/pam.d/sfcb** with

```
auth required pam_stack.so service=system-auth
auth required /lib/security/pam_nologin.so
account required pam_stack.so service=system-auth
```

3   Replace the content of **/etc/pam.d/system-auth** with

```
%PAM-1.0
This file is auto-generated.
User changes will be destroyed the next time authconfig is run.
auth required /lib/security/$ISA/pam_env.so
auth sufficient /lib/security/$ISA/pam_unix.so likeauth nullok
auth sufficient /lib/security/$ISA/pam_krb5.so use_first_pass
auth sufficient /lib/security/$ISA/pam_winbind.so use_first_pass
auth required /lib/security/$ISA/pam_deny.so
account required /lib/security/$ISA/pam_unix.so broken_shadow
account sufficient /lib/security/$ISA/pam_succeed_if.so uid 100 quiet
account [default=bad success=ok user_unknown= ignore] /lib/security/$ISA/pam_krb5.so
account [default=bad success=ok user_unknown= ignore] /lib/security/$ISA/pam_winbind.so
account required /lib/security/$ISA/pam_permit.so
password requisite /lib/security/$ISA/pam_cracklib.so retry=3
password sufficient /lib/security/$ISA/pam_unix.so nullok use_authtok md5 shadow
password sufficient /lib/security/$ISA/pam_krb5.so use_authtok
password sufficient /lib/security/$ISA/pam_winbind.so use_authtok
password required /lib/security/$ISA/pam_deny.so
session required /lib/security/$ISA/pam_limits.so
session required /lib/security/$ISA/pam_unix.so
session optional /lib/security/$ISA/pam_krb5.so
```

Workaround For The Libssl Issue

If the required library needed by **openwsman** is present on the system, the **autoconf_cim_component.sh** script tries to resolve the **libssl.so** issue. However, if the library is not present, then the script reports the same. Check if the latest version of the **libssl** library is installed on the system and then create a soft link with **libssl.so**.

For example: if you have `libssl.so.0.9.8a` and `libssl.so.0.9.8b` in **/usr/lib**, then create soft link with the latest `libssl.so.0.9.8b`:

· `ln -sf /usr/lib64/libssl.so.0.9.8b /usr/lib64/libssl.so`

· `ldconfig`

Winbind Configuration For openwsman And sfcb For SUSE Linux Enterprise Server Operating System

Follow the instructions mentioned below to configure openwsman and sfcb.

1 Back up the following files:
   - **/etc/pam.d/openwsman**
   - **/etc/pam.d/sfcb**
   - **/etc/pam.d/system-auth**
   - **/etc/pam.d/common-account**

2 Replace the content of **/etc/pam.d/openwsman/** and **/etc/pam.d/sfcb** with

```
%PAM-1.0
auth include common-auth
auth required /lib/security/pam_nologin.so
account include common-account
```

3 Replace the content of **/etc/pam.d/common-auth** with

```
auth required pam_env.so
auth sufficient pam_unix2.so debug
auth sufficient pam_winbind.so use_first_pass debug
```

4 Replace the content of **/etc/pam.d/common-account** with

```
account sufficient pam_unix2.so
account sufficient pam_winbind.so
```

Installing Managed System Software On Supported Linux And VMware ESXi

The following table explains the operating system installation matrix for Systems Management.

Table 4. Operating System Installation Matrix

Operating System Architecture	64-bit Architecture
Red Hat Enterprise Linux 7.4	Install
Red Hat Enterprise Linux 6.9	Install
SUSE Linux Enterprise Server (SLES) 12 SP3	Install
SUSE Linux Enterprise Server (SLES) 11 SP4	Install
VMware vSphere 6.5 U1	Install
VMware vSphere 6.0 U3	Install
Ubuntu 16.04.3	Install

ⓘ **NOTE:** On a Systems Management upgrade, it is recommended to upgrade to the latest open source components available on the *Dell EMC OpenManage Systems Management Tools and Documentation* software or from dell.com/support/home.

ⓘ **NOTE:** If you are upgrading the operating system to a major version, uninstall the existing version of Systems Management and install the supported version.

ⓘ **NOTE:** Before you migrate to Systems Management software, make sure you uninstall the Systems Management and other open source components (openwsman-server, openwsman-client, libwsman1, sblim-sfcb, sblim-sfcc, libcmpiCppImpl0, libsmbios2, smbios-utils-bin) installed as part of the Systems Management.

ⓘ **NOTE:** The Inventory Collector RPM (srvadmin-cm) requires the following RPMs to be preinstalled on servers prior to 11th generation of PowerEdge servers running Linux operating system.

- glibc.i686
- compat-libstdc++.i686
- libstdc++.i686
- zlib.i686libxml2.i686

If the dependent RPMs are not installed then Inventory Collector will not function as expected and exits with error messages.

ⓘ **NOTE:** On systems running the Red Hat Enterprise Linux operating system the Emulex driver dependent on the following RPMs:

- kernel-headers-2.6.18-346.el5.i386.rpm
- glibc-headers-2.5-107.i386.rpm
- glibc-devel-2.5-107.i386.rpm
- gcc-4.1.2-54.el5.i386.rpm

If any of the RPMs listed are missing, the system experiences issues in detecting the Emulex Network Adapters.

The installation scripts and RPM packages specific to supported Linux and VMware ESXi operating systems are provided to install and uninstall the Server Administrator and other managed system software components. These installation scripts and RPMs are located in the **SYSMGMT/srvadmin/linux/supportscripts** directory available in the *Dell EMC OpenManage Systems Management Tools and Documentation* software.

The install script **srvadmin-install.sh** allows silent or interactive installation. By including the **srvadmin-install.sh** script in the Linux scripts, install Server Administrator locally or across a network on single or multiple systems.

The second install method uses the Server Administrator RPM packages provided in the custom directories and the Linux **rpm** command. Write Linux scripts that install Server Administrator locally or across a network on single or multiple systems.

Using a combination of the two install methods is not recommended and may require that you manually install the required Server Administrator RPM packages provided in the custom directories, using the Linux **rpm** command.

For information on supported platforms and supported operating systems, see the *Dell EMC OpenManage Systems Software Support Matrix* at **dell.com/openmanagemanuals**.

Topics:

- Software License Agreement
- RPM For Individual Components
- OpenIPMI Device Driver
- Installing Managed System Software
- Uninstalling Managed System Software

Software License Agreement

The software license for the Red Hat Enterprise Linux and SUSE Linux Enterprise Server version of the Systems Management software is located on the *Dell EMC OpenManage Systems Management Tools and Documentation* software. Read the **license.txt** file. By installing or copying any of the files on the provided media, you are agreeing to the terms in this file. This file is also copied to the root of the software tree where you install the Systems Management software.

RPM For Individual Components

The following table lists the RPMs for individual components that can be used during installation:

Table 5. RPM for Individual Components

	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
Server Administrator Web Server	OS	srvadmin-omilcore srvadmin-omcommon srvadmin-jre srvadmin-omacs srvadmin-tomcat srvadmin-smcommon srvadmin-smweb	dsm_om_connsvc	-w or --web
Server Instrumentation	PE Server, OS	srvadmin-omilcore	dsm_sa_datamgrd	-d or --dellagent

	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
	(For systems running Red Hat Enterprise Linux, install net-snmp-utils. For systems running SUSE Linux Enterprise, install net-snmp)	srvadmin-smcommon srvadmin-omacore srvadmin-deng srvadmin-hapi srvadmin-isvc srvadmin-omcommon srvadmin-idrac-snmp srvadmin-isvc-snmp srvadmin-deng-snmp srvadmin-cm srvadmin-omacs srvadmin-ominst srvadmin-xmlsup srvadmin-rac-components	dsm_sa_eventmgrd dsm_sa_snmpd dsm_sa_shrsvcd	
Server Instrumentation Only	PE Server, OS	srvadmin-xmlsup srvadmin-hapi srvadmin-omilcore srvadmin-deng srvadmin-isvc srvadmin-omcommon srvadmin-cm srvadmin-omacs srvadmin-ominst srvadmin-rac-components	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_shrsvcd	-g or --agent
SNMP	PE Server, OS (For systems running Red Hat Enterprise Linux, install net-snmp-utils. For systems running SUSE Linux Enterprise, install net-snmp)	srvadmin-xmlsup srvadmin-hapi srvadmin-omilcore srvadmin-deng srvadmin-isvc srvadmin-omcommon	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_snmpd dsm_sa_shrsvcd	-m or --snmp

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	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
		srvadmin-idrac-snmp		
		srvadmin-isvc-snmp		
		srvadmin-deng-snmp		
		srvadmin-cm		
		srvadmin-omacs		
		srvadmin-ominst		
		srvadmin-rac-components		
CLI	PE Server, OS	srvadmin-xmlsup	dsm_sa_datamgrd	-i or --cli
		srvadmin-hapi	dsm_sa_eventmgrd	
		srvadmin-omilcore	dsm_sa_shrsvcd	
		srvadmin-deng		
		srvadmin-isvc		
		srvadmin-omcommon		
		srvadmin-omacore		
		srvadmin-cm		
		srvadmin-omacs		
		srvadmin-ominst		
		srvadmin-rac-components		
OS Logging Option	PE Server, OS	srvadmin-xmlsup	dsm_sa_datamgrd	-l or --oslog
		srvadmin-hapi	dsm_sa_eventmgrd	
		srvadmin-omilcore	dsm_sa_shrsvcd	
		srvadmin-deng		
		srvadmin-isvc		
		srvadmin-omcommon		
		srvadmin-oslog		
		srvadmin-cm		
		srvadmin-omacs		
		srvadmin-ominst		
		srvadmin-rac-components		

	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
Remote Enablement	PE Server, OS, CIMOM, WSMAN CIMOM version >= SFCB 1.3.2 (applicable for systems running Red Hat Enterprise Linux, and SUSE Linux) WSMAN Version >= OpenWSMAN 2.1 (For systems running Red Hat Enterprise Linux, install net-snmp-utils. For systems running SUSE Linux Enterprise, install net-snmp)	srvadmin-xmlsup srvadmin-hapi srvadmin-omilcore srvadmin-deng srvadmin-rac-components srvadmin-omacs srvadmin-ominst srvadmin-idrac-snmp srvadmin-isvc-snmp srvadmin-deng-snmp srvadmin-isvc srvadmin-omcommon srvadmin-omacore srvadmin-cm srvadmin-smcommon srvadmin-itunnelprovider	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_snmpd dsm_sa_shrsvcd	-c or --cimagent
Storage Agent and Server Instrumentation	(For systems running Red Hat Enterprise Linux, install net-snmp-utils. For systems running SUSE Linux Enterprise, install net-snmp)	srvadmin-xmlsup srvadmin-sysfsutils srvadmin-storelib-sysfs srvadmin-storelib srvadmin-hapi srvadmin-omilcore srvadmin-deng srvadmin-deng-snmp srvadmin-isvc srvadmin-isvc-snmp srvadmin-omcommon srvadmin-omacore srvadmin-omacs srvadmin-ominst	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_snmpd dsm_sa_shrsvcd	-s or --storage

	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
		srvadmin-cm		
		srvadmin-realssd (applicable for x86_64 bit only)		
		srvadmin-smcommon		
		srvadmin-storage		
		srvadmin-storage-cli		
		srvadmin-idrac-snmp		
		srvadmin-storage-snmp		
		srvadmin-rac-components		
Remote Access SA Plugin Component -> Remote access core components, Server Instrumentation	iDRAC agent is installed if iDRAC card is available in the server. iDRAC agent is installed for 9G and 10G servers. iDRAC agent is installed for 11th generation and 12th generation of PowerEdge servers with RAC presence. (For systems running Red Hat Enterprise Linux, install net-snmp-utils. For systems running SUSE Linux Enterprise, install net-snmp)	srvadmin-xmlsup	dsm_sa_datamgrd	-r or --rac
		srvadmin-hapi	dsm_sa_eventmgrd	
		srvadmin-argtable2	dsm_sa_snmpd	
		srvadmin-omilcore	dsm_sa_shrsvcd	
		srvadmin-deng		
		srvadmin-deng-snmp		
		srvadmin-isvc		
		srvadmin-isvc-snmp		
		srvadmin-omcommon		
		srvadmin-omacs		
		srvadmin-ominst		
		srvadmin-omacore		
		srvadmin-cm		
		srvadmin-smcommon		
		srvadmin-rac-components		
		srvadmin-idracdrsc		
		srvadmin-racdrsc		
		srvadmin-idracadm7		
		srvadmin-idracadm		
		srvadmin-racadm4		
		srvadmin-idrac7		

	Prerequisite	RPM	Service Names	Command Line Options for srvadmin-install.sh
		srvadmin-idrac-snmp srvadmin-idrac-vmcli		
Storage Agent and Server Instrumentation	PE Server, OS	srvadmin-xmlsup srvadmin-hapi srvadmin-omacs srvadmin-ominst srvadmin-omilcore srvadmin-deng srvadmin-isvc srvadmin-cm srvadmin-rac-components	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_shrsvcd	-t or --stragent
Remote Enablement and Server Instrumentation	PE Server, OS	srvadmin-xmlsup srvadmin-hapi srvadmin-omilcore srvadmin-deng srvadmin-isvc srvadmin-cm srvadmin-omacs srvadmin-ominst srvadmin-itunnelprovider srvadmin-rac-components	dsm_sa_datamgrd dsm_sa_eventmgrd dsm_sa_shrsvcd	-z or --corecim

ⓘ **NOTE:** To manage the server, select either Server Administrator Web Server or one of the Management Interfaces – CLI, SNMP or OS LOG along with Server Instrumentation (SI) or Server Administrator Storage Management Service (OMSS).

ⓘ **NOTE:** Command-line options for [-t] and [-g] cannot be used without a management interface. These options must be combined with management interface options such as [-w], [-i], [-z], [-l], or [-m]. For more information on custom installations, see Server Administrator Custom Installation Utility.

OpenIPMI Device Driver

The Server Instrumentation feature of Server Administrator requires the OpenIPMI device driver that provides IPMI-based information and functionality.

All supported Linux systems contain the required version of IPMI module in the default kernel itself. You do not have to install the IPMI RPM. For more information on supported systems, see the *Dell EMC OpenManage Systems Software Support Matrix*.

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Degradation Of Functionality When The Server Administrator Instrumentation Service Is Started

After Server Administrator is installed, the Server Administrator Instrumentation Service performs a run-time check of the OpenIPMI device driver whenever it is started. The Server Administrator Instrumentation Service is started whenever you run either the **srvadmin-services.sh start** or **srvadmin-services.sh restart** commands, or when you restart the system (during which the Server Administrator Instrumentation Service is started.)

Server Administrator installation blocks the installation of Server Administrator packages if an appropriate version of the OpenIPMI device driver is not currently installed on the system. However, it is still possible, though not typical, that you can uninstall or replace a sufficient version of the OpenIPMI device driver after Server Administrator has been installed. Server Administrator cannot prevent this.

To account for a user uninstalling or replacing a sufficient version of the OpenIPMI device driver after Server Administrator has been installed, the Server Administrator Instrumentation Service checks the OpenIPMI device driver version whenever it is started. If a sufficient version of the OpenIPMI device driver is not found, the Server Administrator Instrumentation Service degrades itself so that it does not provide any of the IPMI-based information or functionality. Primarily, this means that it does not provide any probe data (for example, fans, temperatures, and voltage probe data.)

Installing Managed System Software

This section explains how to install managed system software using the following installation options:

- Using the **srvadmin-install.sh** shell script

> (i) NOTE: **If you have downloaded the managed system software installer (available as a .tar.gz file), the srvadmin-install.sh shell script is present as setup.sh in the root directory.**

- Using the RPM command

Prerequisites For Installing Managed System Software

The prerequisites are:

- Log in as **root**.
- The running kernel must have loadable module support enabled.
- The **/opt** directory must have at least 250 MB of free space, and the **/tmp**, **/etc**, and **/var** directories must each have at least 20 MB of free space.
- Install the **ucd-snmp** or **net-snmp** package that is provided with the operating system if you use SNMP to manage the server. If you want to use supporting agents for the **ucd-snmp** or **net-snmp** agent, you must install the operating system support for the SNMP standard before you install Server Administrator. For more information about installing SNMP, see the installation instructions for the operating system you are running on the system.

> (i) NOTE: **When installing RPM packages, to avoid warnings concerning the RPM–GPG key, import the key with a command similar to** `rpm --import <OM DVD mountpoint>/SYSMGMT/srvadmin/linux/RPM-GPG-KEY`

- In case of Red Hat Enterprise Linux 6.2 or later and SLES 11 SP2, install the **wsman** and **sblim** packages from the operating system DVD. See, To install the wsman and sblim packages
- Install all the prerequisite RPMs required for successful installation.

  If the system had VMware ESXi (version 6.x or 7.x) factory-installed, Red Hat Enterprise Linux (versions 6.x and 7.x), or SUSE Linux Enterprise Server (version 11 and 12), see the Dependent RPMs for Remote Enablement section for information on any RPMs that you need to manually install prior to installing managed system software. Typically, you may not need to manually install any RPMs.

Installing The wsman And sblim Packages

1 In **Package selection**, select **Basic Server.**

2 Select **Customize now** and click **Next**.

3 Select **System Management** group.

4 From the sub-category, select **Web-based Enterprise Management** > **Optional Packages** option. The default selected packages are: **openwsman-client**, **sblim-sfcb**, **sblim-wbemcli**, and **wsmancli**

   Deselect the **sblim-wbemcli** package from the above list.

5 Select **openwsman-server** and click **Next**.

6 After the operating system installation, install **libcmpiCppImpl0** package from the operating system DVD or using the **Yum** utility.

Installing Managed System Software Using The Provided Media

The installer uses RPMs to install each component. The software (DVD) is divided into subdirectories to enable easy custom installation.

To review the software before you install it, follow this procedure:

1 Load the *Dell EMC OpenManage Systems Management Tools and Documentation* software into the DVD drive.

2 Mount the DVD, if required.

3 When you have mounted the DVD, navigate to: **<OM DVD mount point>/SYSMGMT/srvadmin/linux/**

   The installation script and RPM folder are available under the Linux directory.

Express Install

Use the provided shell script to perform the express installation on supported Linux and VMware ESX operating systems.

> (i) **NOTE: On the Red Hat Enterprise Linux 6.x operating system, DVDs are auto-mounted with the -noexec mount option. This option does not allow you to run any executable from the DVD. Manually mount the DVD and then run executables.**

1 Log in as `root` to the system running the supported operating system where you want to install the managed system components.

2 Mount the *Dell EMC OpenManage Systems Management Tools and Documentation* software into the DVD drive.

3 Mount the DVD, if required.

4 Navigate to **<OM DVD mount point>/SYSMGMT/srvadmin/linux/supportscripts** directory. Run the **srvadmin-install.sh** shell script, which performs an express installation.

   ```
   sh srvadmin-install.sh --express
   ```

   or

   ```
   sh srvadmin-install.sh -x
   ```

   The setup program installs the following managed system software features:
   - Server Administrator Web Server
   - Server Instrumentation
   - Storage Management
   - Remote Access Controller

   Remote enablement is not installed and Server Administrator services do not start automatically.

ⓘ **NOTE: The Inventory Collector RPM (srvadmin-cm) requires the following RPMs to be preinstalled on servers prior to 11G running the supported Linux operating system.**

- glibc.i686
- compat-libstdc++.i686
- libstdc++.i686
- zlib.i686libxml2.i686

If the dependent RPMs are not installed then Inventory Collector will not function as expected and exits with error messages.

After the selected features are installed, the following message is displayed. `iDRAC is an out-of-band management system that allows system administrators to monitor and manage the PowerEdge Servers and other network equipment, remotely. iDRAC works regardless of Power status and operating system functionality. For more information, visit http://pilot.search.dell.com/iDRAC.`

5   Start the Server Administrator services after the installation using the **srvadmin-services.sh** script by using the **sh srvadmin-services start** command.

Component Specific Install Using RPM Commands

The RPMs specific to a particular OpenManage component are grouped together. To facilitate an RPM-based installation, install the RPMs from the following directories:

- SYSMGMT/srvadmin/linux/custom/<OS>/Remote-Enablement/< arch>
- SYSMGMT/srvadmin/linux/custom/<OS>/SA-WebServer/<arch>
- SYSMGMT/srvadmin/linux/custom/<OS>/Server-Instrumentation/<arch >
- SYSMGMT/srvadmin/linux/custom/<OS>/add-RAC4/<arch>
- SYSMGMT/srvadmin/linux/custom/<OS>/add-RAC5/<arch>
- SYSMGMT/srvadmin/linux/custom/<OS>/add-StorageManagement/< arch>
- SYSMGMT/srvadmin/linux/custom/<OS>/add-iDRAC/<arch>

For example, if you are running Red Hat Enterprise Linux version 7, you can customize the installation by adding the RPMs from the following directories:

Table 6. RPM Directory

Directory	RPM Package
SYSMGMT/srvadmin/linux/custom/RHEL7/add-StorageManagement/<arch>	Storage Management component packages
SYSMGMT/srvadmin/linux/custom/RHEL7/SAWebServer/<arch>	Server Administrator Web Server component packages
SYSMGMT/srvadmin/linux/custom/RHEL7/Server-Instrumentation/<arch>	Server Instrumentation packages

Where <OS> is the supported operating system and <arch> is 64-bit (x86_64).

The DVD provides RPMs that enable repository-based installation using clients such as Yum, Zypper, and Rug. There are RPMs that install the entire set or you can select individual RPMs to install specific components. The RPMs are available at:

`SYSMGMT/srvadmin/linux/RPMS/supportRPMS/metaRPMS`

The following list of RPMs enables the installation of a particular RPM set.

Table 7. Meta RPMs

Meta RPMs	Details
srvadmin-all	Installs all the components.
srvadmin-base	Installs the Server Instrumentation component. This component has to be installed before installing any of the other specific components.
srvadmin-idrac	Installs the iDRAC component.
srvadmin-standardAgent	Installs the Remote Enablement component.
srvadmin-storageservices	Installs the storage services component.
srvadmin-webserver	Installs the web server component.
srvadmin-server-snmp	Installs the server Simple Network Management Protocol (SNMP) component.
srvadmin-server-cli	Installs the server Command Line Interface (CLI) component.
srvadmin-storageservices-snmp	Installs the storage SNMP component.
srvadmin-storageservices-cli	Installs the storage CLI component.

Related Links:

Linux Installer Packages

Custom RPMs Based Installation

The following is an example of custom RPMs-based installation of Server Administrator, including the installation of the Remote Enablement feature and the Storage Management Service components.

ⓘ **NOTE: On the Red Hat Enterprise Linux operating system, DVDs are automounted with the -noexec mount option. This option does not allow you to run any executable from the DVD. You have to manually mount the DVD and then run executables.**

1 Log in as `root` to the system running the supported operating system where you want to install the managed system components.
2 Insert the *Dell EMC OpenManage Systems Management Tools and Documentation* software into the DVD drive.
3 Navigate to the operating system specific directory corresponding to the system.
4 Type the following command:

```
rpm –ivh Server-Instrumentation/<arch>/*.rpm
add-StorageManagement/<arch>/*.rpm
RemoteEnablement/<arch>/*.rpm
```

Server Administrator services do not start automatically.

ⓘ **NOTE: Ensure that you install Server Instrumentation or Remote Enablement before installing Remote Access Controller or Storage Management.**

ⓘ **NOTE: If you choose to install the Remote Enablement feature, ensure that you install the dependent RPMs before installing this feature.**

5 Start the Server Administrator services after the installation by using the command:

```
sh srvadmin-services start
```

ⓘ **NOTE: You can install Server Administrator on any system that meets operating system dependencies. However, after installation, certain Server Administrator services may not be started on unsupported systems.**

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ⓘ **NOTE: When Server Administrator is installed on a system, dependency issues related to RPMs may occur. To resolve these issues, install the missing RPMs from SYSMGMT/srvadmin/linux/RPMS/supportRPMS/opensourcecomponents. If the RPMs are not available in this directory, install these RPMs from the operating system media. If not available on the media, search for these RPMs on the Internet.**

Related Links:

Dependent RPMs for Remote Enablement

Using The Shell Script To Perform The Custom Installation

You can run the Server Administrator Custom Install script in an interactive mode.

The basic usage of the script is:

```
srvadmin-install.sh [OPTION]...
```

Server Administrator Custom Installation Utility

The Server Administrator utility runs in an interactive mode if you do not specify any options, and runs silently if you provide one or more options.

The options are:

- [**-c|--cimagent**] — Installs Remote Enablement components.
- [**-d|--dellagent**] — Installs Server Instrumentation components. Including the granular components:
  a Server Administrator CLI Interface
  b Server Administrator SNMP Interface
  c Server Administrator Operating System Log Interface
- [**-g|--agent**] — Installs the Server Instrumentation agent only.*
- [**-h|--help**] — Displays the help text.
- [**-i|--cli**] — Installs Server Administrator Command Line Interface.*
- [**-l|--oslog**] — Installs operating system logging component.*
- [**-m|--snmp**] — Installs Server Administrator SNMP component.*
- [**-r|--rac**] — Installs applicable RAC components and Server Instrumentation components.
- [**-s|--storage**] — Installs Storage Management, Server Instrumentation, and Default Management Interfaces'.
- [**-t|--stragent**] — Installs Server Instrumentation and Storage Management. This requires at least one management interface option in combination.*
- [**-u|--update**] — Updates applicable Server Administrator components.
- [**-w|--web**] — Installs Server Administrator Web Server.
- [**-x|--express**] — Installs default components. Any other options passed will be ignored. The following components are installed::
  a Server Instrumentation
  b Storage Management
  c RAC, if applicable
  d Server Administrator Web Server
- [**-z|--corecim**] — Installs core CIM Interface.*

The following options can be used along with options stated above:

- [**-a|--autostart**] — Starts the installed services after components have been installed.
- [**-p|--preserve**] — Preserves the screen without clearing the installation information.

> ⓘ | **NOTE: If you do not use the [-p | --preserve] option during the installation, the history information on the screen gets erased.**

* — Options included for Linux granular installation.

Using The Shell Script To Perform The Installation In Interactive Mode

This installation procedure uses the `srvadmin-install.sh` to prompt you for the installation of specific components.

1 Log in as `root` to the system running the supported operating system where you want to install the managed system components.
2 Mount the *Dell EMC OpenManage Systems Management Tools and Documentation* software into the DVD drive.
3 Mount the DVD, if required.
4 Navigate to **<OM DVD mount point>/SYSMGMT/srvadmin/linux/supportscripts**.
5 Execute the script with the `sh srvadmin-install.sh` command and accept the terms of the end-user license agreement.

   Executing the command displays a list of component options. If any of the components are already installed, then those components are listed separately with a check mark next to them. The Server Administrator installation options are displayed.
6 Press **<c>**to copy, **<i>** to install, **<r>** to reset and start over, or **<q>** to quit. If you press **<c>**, you are prompted to enter the absolute destination path.

   When the installation is complete, the script has an option for starting the services.
7 Press **<y>**to start the services or **<Enter>** to exit.

Using The Install Script To Run In Silent Mode

Perform these steps for a silent installation using the `srvadmin-install.sh` shell script:

1 Log in as `root` to the system running the supported operating system where you want to install the managed system components.
2 Mount the *Dell EMC OpenManage Systems Management Tools and Documentation* software into the DVD drive.
3 Mount the DVD, if required.
4 Navigate to **<OM DVD mount point>/SYSMGMT/srvadmin/linux/supportscripts**.
5 To install the Storage Management Service components, type the command `sh srvadmin-install.sh --storage` (long options) OR `sh srvadmin-install.sh -s` (short options)

   > ⓘ | **NOTE: Long options can be combined with short options, and vice-versa.**
6 Start Server Administrator services after the installation by typing the command `sh srvadmin-services start`.

   > ⓘ | **NOTE: After installing Server Administrator, log out and then log in again to access the Server Administrator Command Line Interface (CLI).**

Determining The Server Administrator Architecture

Use the following command to identify if the already installed Server Administrator is of 64-bit architecture

```
rpm -q --queryformat "%{NAME} - %{ARCH}\n"  `rpm -qa | grep srvadmin`
```

The system displays a message identifying the architecture where, x86_64 refers to 64-bit.

Managed System Software Installation Using Third Party Deployment Software

You can use third-party deployment software, such as Altiris Deployment Solution, VMWare Update Manager (VUM), or Linux Respository for Yellowdog Updater Modified (YUM), Rug, and Zypper, to install managed systems software on supported systems.

To distribute and install Server Administrator using Altiris Deployment Solution:

1 Start the Altiris application
2 Import **OpenManage_Jobs.bin** located at SYSMGMT\srvadmin\support\Altiris on the *Dell EMC OpenManage Systems Management Tools and Documentation* software
3 Specify a job folder to import **OpenManage_Jobs.bin**.
4 Modify the **Run Script** and **Copy File** tasks to match the deployment environment.
5 Schedule the job to run on the supported systems that are managed from the Altiris Deployment Solution.

ⓘ **NOTE: For more information on VMWare Update Manager, see** Using the VMWare Update Manager (VUM).

Linux Repository

The Linux Repository is the official repository for all related software and updates for your Linux systems. You can use this repository to complete the following tasks:

· Install Server Administrator
· Install drivers for all your Linux systems
· Install BIOS and firmware updates

Setting Up The Linux Repository

Before you can start using the Linux Repository for installing software or upgrades, you must set up the repository. For more information, see **http://linux.dell.com/repo/hardware/**.

Set up the repository with:

```
wget -q -O - http://linux.dell.com/repo/hardware/latest/bootstrap.cgi | bash
```

ⓘ **NOTE: If you require 64-bit packages, uninstall the existing 32-bit packages before installing the new software. Server Administrator is designed to match your current operating system.**

Installation Using Linux Repository

You can install Server Administrator using the Linux Repository by following any of the methods listed below:

ⓘ **NOTE: Ensure that you set up the Linux Repository before you install the software from the repository.**

ⓘ **NOTE: Server Administrator will not install on unsupported systems. If you try installing Server Administrator on unsupported systems, you will receive a message that the system is not supported and the installation will fail.**

Using YUM

ⓘ **NOTE: Ensure that you are using the latest version of YUM as the older versions do not support plug-ins or mirrorlists.**

If you are using YUM with CentOS, or Scientific Linux, ensure that the plug-ins are enabled as the system connects to a system specific repository using a YUM plug-in. If the plug-in is not enabled, the repository will not work properly and you will not be able to install packages from the repository. Add the `plugins=1` line, to your **yum.conf**, if the plug-in is not enabled.

The following command line will work for Red Hat Enterprise Linux 5 and 6, CentOS, and Scientific Linux:

```
yum install srvadmin-all
```

After the installation, type the following command to start the Server Administrator services:

```
srvadmin-services start
```

Using RUG

You can install Server Administrator using rug for SLES 10 or higher.

```
rug install srvadmin-base
```

```
rug install srvadmin-webserver
```

```
rug install srvadmin-storageservices
```

ⓘ | NOTE: **You must have setserial installed, if you want to install srvadmin-all.**

Using ZYPPER

You can install Server Administrator using zypper for SLES 12 or higher.

```
zypper install srvadmin-all
```

Uninstalling Managed System Software

To uninstall Managed System Software, log in as `root`.

Uninstalling Managed System Software Using The Uninstall Script

An uninstallation script is installed when you install Server Administrator. Execute the script by typing `srvadmin-uninstall.sh` and then pressing <Enter>.

Uninstalling Managed System Software Using The RPM Command

The individual components of systems management software can be uninstalled without uninstalling all of systems management.

To uninstall only the Server Administrator Web Server, use the command `rpm –e `rpm -qa | grep srvadmin-tomcat``.

During an uninstallation, files in which user settings are made are preserved with the **.rpmsave** file extension. Log files are also preserved after the uninstallation.

Installing Systems Management Software On VMware ESXi

VMware ESXi is factory-installed on some systems. For a list of these systems, see the latest *Systems Software Support Matrix*.

Server Administrator is available as a .zip file for installing on systems running VMware ESXi. The **zip** file, **OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i_<bld-revno>.zip**, where <version> is the supported ESXi version.

Download VMware vSphere Command Line Interface (vSphere CLI) from **vmware.com** and install on the Microsoft Windows or Linux system. Alternately, you can import VMware vSphere Management Assistant (vMA) to the ESXi host.

Topics:

Using the vSphere CLI

To install systems management software on VMware ESXi using the vSphere CLI:

1   Copy and unzip the **OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i_<bld-revno>.zip** file to a directory on the system. For ESXi 6.0 U3 and ESXi 6.5, copy the unzipped file to the **/var/log/vmware** folder on the ESXi 6.0 U3 or ESXi 6.5 server.
2   Shut down all guest operating systems on the ESXi host and put the ESXi host in maintenance mode.
3   If you are using vSphere CLI on Windows, navigate to the directory where you have installed the vSphere CLI utilities.

    If you are using vSphere CLI on Linux, execute the command from any directory.
4   Execute the following command:

    For VMware ESXi 6.0 U3: `esxcli --server <IP Address of ESXi 6.0 host> software vib install -d /var/log/vmware/<Dell OpenManage file>`

5   Enter the root username and password of the ESXi host when prompted.

    The command output displays a successful or a failed update.

    ⓘ NOTE: After you install the VIB, a host reboot is not required.

    ⓘ NOTE: After an ESXi VIB installation, the CIM services are restarted automatically to load the Server Administrator providers (DCIM service). It is recommended to wait for 2 — 3 minutes before logging in from any Server Administrator web server. Else, the Server Administrator web server login to the ESXi host may fail.

To get or list the information about the installed VIBs:

- For ESXi 6.x, use `esxcli --server <IP>software vib get` or `software vib list`

The VIB contains the following items:

- Server Administrator Instrumentation Service
- Remote Enablement
- Server Administrator Storage Management
- Remote Access Controller

Related Links:

Troubleshooting

Using the VMware vSphere Management Assistant vMA

The vMA allows administrators and developers to run scripts and agents to manage ESXi systems. For more information on vMA, see **vmware.com/support/developer/vima/**.

1   Log on to vMA as an administrator and provide the password when prompted.
2   Copy and unzip the **OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i_<bld-revno>.zip** file to a directory on the vMA.
3   Shut down all guest operating systems on the ESXi host and put the ESXi host in maintenance mode.
4   In vMA, run the following command:

   For VMware ESXi 6.0 U3: `esxcli --server <IP Address of ESXi 6.0 host> software vib install -d /var/log/vmware/<Dell OpenManage file>`
5   Enter the root username and password of the ESXi host when prompted.

   The command output displays a successful or a failed update.

   ⓘ **NOTE: After you install the VIB, a host reboot is not required.**

   ⓘ **NOTE: After an ESXi VIB installation, the CIM services are restarted automatically to load the Server Administrator providers (DCIM service). It is recommended to wait for 2 — 3 minutes before logging in from any Server Administrator web server. Else, the Server Administrator web server login to the ESXi host may fail.**

When you run the command, the following components are installed on the system:

- Server Administrator Instrumentation Service
- Remote Enablement
- Server Administrator Storage Management
- Remote Access Controller

Install the Server Administrator Web Server separately on a management station.

After installing Server Administrator, enable the Server Administrator Services.

Related Links:

- Troubleshooting

Using The VMware Update Manager VUM

To install Server Administrator using VUM:

1   Install VMware vSphere 6.x (vCenter Server, vSphere Client, and VMware vSphere Update Manager) on a system running the Windows Server operating system.
2   On the desktop, double-click **VMware vSphere Client** and login to vCenter Server.
3   Right-click **vSphere Client host** and click **New Datacenter**.
4   Right-click **New Datacenter** and click **Add Host**. Provide information for the ESXi server per online instructions.
5   Right-click the ESXi host added in the previous step and click **Maintenance Mode**.
6   From **Plug-ins** select **Manage Plug-ins** > **download VMware Update Manager** (The status is enabled if the download is successful.) Follow the instructions to install the VUM client.
7   Select the ESXi host. Click **Update Manager** > **Admin view** > **Patch Repository** > **Import Patches** and follow the online instructions to upload the patch successfully.

    The offline bundle is displayed.
8   Click **Baselines and Groups**.
9   Click **create** from Baselines tab, mention baseline name and select **Host Extension** as baseline type. Complete the rest as per instructions.
10 Click **Admin View**.
11 Click **Add to Baseline** (against the uploaded patch name) and select the baseline name that you have created in step 8.
12 Click **Compliance view**. Select the **Update Manager** tab. Click **Attach** and select the Extension Baseline created in step 8 and follow the instructions.
13 Click **Scan** and select **Patches & Extensions** (if not selected by default) and click on **Scan**.
14 Click **Stage**, select **created Host Extension** and follow the instructions.
15 Click **Remediate** and follow the instructions once the staging is completed.

> ⓘ NOTE: After you install the VIB, a host reboot is not required.

> ⓘ NOTE: After an ESXi VIB installation, the CIM services are restarted automatically to load the Server Administrator providers (DCIM service). It is recommended to wait for 2 — 3 minutes before logging in from any Server Administrator web server. Else, the Server Administrator web server login to the ESXi host may fail.

> ⓘ NOTE: For more information on VMware Update Manager, see the VMware official website.

> ⓘ NOTE: You can install Server Administrator from the VUM repository, https://vmwaredepot.dell.com/.

Server Administrator installation is complete.

Using The Power CLI

To install Server Administrator using Power CLI:

1   Install the supported PowerCLI of ESXi on a supported Windows system.
2   Copy the **OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i_<bld-revno>.zip** file to the ESXi host.
3   Navigate to the bin directory.
4   Run `Connect-VIServer` and provide the server and other credentials.
5   Log on to the ESXi host using supported vSphere CLI of ESXi 6.0 U3 and create a datastore.
6   Create a folder **OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i** on ESXi 6.0 U3 host under **/vmfs/volumes/<datastore_name>** directory.
7   Copy the ESXi zip file on ESXi 6.0 U3 host to**/vmfs/volumes/<datastore_name>OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i** directory.

8   Unzip the zip file in the above specified directory.

9   Run the following command in Power CLI `Install-VMHostPatch -VMHost 10.94.171.97 - HostPath /vmfs/ volumes/<datastore_name>name>/OMSrvAdmin- Dell-Web-<version>-<build ID>.VIBESX<version>i/ cross_oem-dell-openmanage-esxi_<version>-0000- metadata.zip`

> ⓘ **NOTE: After you install the VIB, a host reboot is not required.**

> ⓘ **NOTE: After an ESXi VIB installation, the CIM services are restarted automatically to load the Server Administrator providers (DCIM service). It is recommended to wait for 2 — 3 minutes before logging in from any Server Administrator web server. Else, the Server Administrator web server login to the ESXi host may fail.**

10   Run the following command to check if OpenManage is installed successfully on the host. `esxcli software vib list|grep -i open`

OpenManage is displayed.

> ⓘ **NOTE: For more information on Power CLI, see the VMware official website.**

Accessing Server Administrator on VMware ESXi

To manage Server Administrator on VMware ESXi using the Server Administrator Web Server interface:

1   Install only the Server Administrator Web Server interface on another system.

> ⓘ **NOTE: Ensure that the version of the Server Administrator Web Server interface is greater or equal to the version of the Server Instrumentation installed.**

2   Run the Server Administrator Web Server interface.

The **Managed System Login** screen is displayed.

3   On the **Managed System Login** screen, type the following credentials of the VMware ESXi system you want to access, and then click **Submit**.

- **Hotname / IP address:** — Is the hostname or IP address of the management station. Type the hostname or IP address in the format Hostname:Port Number, or IP address:Port Number.
- **Username:**
- **Password:**

The Server Administrator screen is displayed.

Uninstalling the existing Systems Management VIB

To uninstall the existing Systems Management VIB:

Run the following command to uninstall the VIB:

On ESXi 6.x: `esxcli --server <IP> software vib remove <VIB Name>`

> ⓘ **NOTE: After you uninstall the VIB, a host reboot is not required.**

Configuring The SNMP Agent On Systems Running VMware ESXi

Server Administrator generates Simple Network Management Protocol (SNMP) traps in response to changes in the status of sensors and other monitored parameters. You must configure one or more trap destinations on the system running Server Administrator to send SNMP traps to a management station.

Server Administrator supports SNMP traps on VMware ESXi but does not support SNMP Get and Set operations because VMware ESXi does not provide the required SNMP support. You can use the VMware vSphere CLI to configure VMware ESXi to send SNMP traps to a management application.

Configuring The System To Send Traps To A Management Station Using The vSphere CLI

Server Administrator generates SNMP traps in response to changes in the status of sensors and other monitored parameters. One or more trap destinations must be configured on the system running Server Administrator to send SNMP traps to a management station. Configure the ESXi system running Server Administrator to send traps to a management station:

1 Install the VMware vSphere CLI.
2 Open a command prompt on the system in which the vSphere CLI is installed.
3 Navigate to the directory in which the vSphere CLI is installed. The default location on Linux is **/usr/bin** and on Windows is **C:\Program Files\VMware\VMware vSphere CLI\bin**.
4 Configure the SNMP setting using the command: `vicfg-snmp.pl --server <server> --username <username> -- password <password> -c <community> -t <hostname>@162/<community>`

   where *<server>* is the hostname or IP address of the ESXi system, *<username>* is a user on the ESXi system, *<password>* is the password of the ESXi user, *<community>* is the SNMP community name and *<hostname>* is the hostname or IP address of the management station.

   > ⓘ NOTE: If you do not specify a user name and password, you are prompted to specify the same.

5 Enable SNMP using the command: `vicfg-snmp.pl --server <server> --username <username> --password <password> -E`
6 View the SNMP configuration using the command: `vicfg-snmp.pl --server <server> --username <username> -- password <password> -s`
7 Test the SNMP configuration using the command: `vicfg-snmp.pl --server <server> --username <username> -- password <password> -T`

   > ⓘ NOTE: The .pl extension is not required if you are using vSphere CLI on Linux or using vMA.

The SNMP trap configuration takes effect immediately without restarting any services.

Troubleshooting

- **When attempting to use the vihostupdate command, the following error may be displayed:**

```
unpacking c:\OM-SrvAdmin-Dell-Web-<version>-<bldno>.VIB-ESX<version>i_<bld-revno>.zip
metadata.zip.sig does not exist
signature mismatch : metadata.zip
Unable to unpack update package.
```

   This error is displayed if you are using an older version of the Remote CLI. To resolve this issue, download and install the latest vSphere version of the CLI.

- **When attempting to use the vihostupdate command, the following error may be displayed:**

```
Unable to create, write or read a file as expected.I/O Error (28) on file : [Errno 28] No
space left on device.
```

   See the VMware KB article 1012640 at **kb.vmware.com** to fix this error.

Frequently Asked Questions

What ports do systems management applications use?

The default port used by Server Administrator is 1311. These ports are configurable. For port information of a particular component, see the User Guide of that respective component.

When I run virtual media on the iDRAC controller over a Wide Area Network (WAN) with low bandwidth and latency, launching Systems Management Install directly on the virtual media failed, what do I do?

Copy the web install package to the local system and then launch systems management Install.

Do I need to uninstall the Adaptec Fast Console application installed on the system before installing the Server Administrator Storage Management Service?

Yes, if you already have Adaptec Fast Console installed on the system, you must uninstall this application before installing the Server Administrator Storage Management Service.

Red Hat Enterprise Linux or SUSE Linux Enterprise Server

After installing Server Administrator, I cannot log in.

Log out and then log in again to access the Server Administrator Command Line Interface (CLI).

I see the following message when I try to install Server Administrator on a guest Linux operating system.

```
./srvadmin-install.sh: line 2295 : [: ==: unary operator expected.
```

When installing Systems Management components on a guest Linux operating system, the warning message may be displayed. However, the installation continues and completes without any loss of functionality.

I manually installed my Red Hat Enterprise Linux operating system and can see RPM dependencies while installing Server Administrator. Where can I find these dependent RPM files?

For Red Hat Enterprise Linux, the dependent RPM files are on the Red Hat Enterprise Linux installation media. All other RPMs are available in the **/SYSMGMT/srvadmin/linux/RPMS/supportRPMS\opensource-components** directory. To install or update all the dependent RPM files execute the following command:

```
rpm —ivh /SYSMGMT/srvadmin/linux/RPMS/ supportRPMS/opensource-components
```

You can then continue with the Server Administrator installation.

I have performed a non-default install of the Linux operating system using the Linux operating system media, I see missing RPM file dependencies while installing Server Administrator?

When installed on a system running a 64-bit version of Red Hat Enterprise Linux operating system, the Server Administrator remains a 32-bit application, while the device drivers installed by Server Administrator are 64-bit. If you attempt to install Server Administrator on Red Hat Enterprise Linux (versions 5 and version 6) for Intel EM64T, ensure that you install the applicable 32-bit versions of the missing RPM file dependencies. The 32-bit RPM versions always have **i386** in the filename extension. You may also experience failed shared object files (files with so in the filename extension) dependencies. In this case, you can determine which RPM is needed to install the shared object, by using the RPM `--whatprovides` switch. For example: `rpm -q --whatprovides libpam.so.0`

An RPM name such as **pam-0.75-64** could be returned, so obtain and install the **pam-0.75-64.i386.rpm**. When Server Administrator is installed on a system running a 64-bit version of Linux operating system, ensure that the **compat-libstdc++-<version>.i386.rpm** RPM package is installed. You need to resolve the dependencies manually by installing the missing RPM files from the Linux operating system media.

> (i) **NOTE:** If you are using later versions of supported Linux operating systems and the RPM files available in the directory **SYSMGMT/srvadmin/linux/RPMS/supportRPMS on the DVD are incompatible, use the latest RPMs from the operating system media.**

Where can I find the source packages for Open Source RPMs?

Source packages for Open Source RPMs are available on an orderable DVD image.

What do I do when management station RAC utility installation fails due to missing RPM file?

During the installation of the management station RAC utility (`mgmtst-racadm` RPM under **/SYSMGMT/ManagementStation/linux/rac** directory on the *Dell EMC OpenManage Systems Management Tools and Documentation* software), the installation may fail due to missing

RPM file dependencies on **libstdc++.so** libraries. Install the **compat-libstdc++** RPM provided in the same directory to resolve the dependency and retry the installation.

When using the rpm -e 'rpm -qa | grep srvadmin' command to remove systems management software, some RPM utility versions may schedule an uninstallation in an incorrect order, which results in users encountering misleading warning or error messages. What is the solution?

The solution is to use the systems management uninstall script **srvadmin-uninstall.sh**, provided on the DVD.

What do I do when I am asked to authenticate using the root user account?

Systems Build and Update Utility adds a script to the root user's **.bash_profile** file that prompts for the installation of systems management software. This script may interfere with remote client applications that authenticate using the root user account on the system, but do not have a means to handle user prompts. To remedy this limitation, edit the **.bash_profile** file and comment the line `[ ${SHLVL}....`

During uninstallation, **error: %preun(srvadmin-NAME-X.Y.Z-N.i386) scriptlet failed, exit status 1** error message is displayed.

There may be problems uninstalling Server Administrator after an unsuccessful upgrade during a manual RPM upgrade. The following error message is displayed:

```
error: %preun(srvadmin-NAME-X.Y.Z-N.i386) scriptlet failed, exit status 1
```

In this case, `NAME` is a feature name, for example **omacore**. **X.Y.Z-N** is the version and build number of the feature. Some possible solutions to rectify this problem:

1   Attempt to uninstall again. For example, use the following command:
```
rpm -e srvadmin-NAME-X.Y.Z-N.i386
```
2   Delete the upgrade.relocation=bad line if present in the **/etc/omreg.cfg** file and attempt to uninstall again.

Why am I getting a warning concerning the RPM package key during installation?

The RPM files are signed with a digital signature. To avoid this warning, you should mount the media or package, and import the key using a command such as the following:

```
rpm --import /mnt/dvdrom/SYSMGMT/srvadmin/linux/RPM-GPG-KEY
```

What are the names of all the Systems Management features under Red Hat Enterprise Linux or SUSE Linux Enterprise Server?

The following table lists the names of all systems management features and their corresponding init script names under Red Hat Enterprise Linux and SUSE Linux Enterprise Server operating systems.

Table 8. Systems Management Features — VMware ESX, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server

Feature	Name in VMware ESX, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server
Managed System Services Feature	**Feature init Script Name**
DSM SA Device Drivers	instsvcdrv
DSM SA Data Engine Service	dataeng
DSM SA Shared Service	dsm_om_shrsvc
DSM SA Connection Service	dsm_om_connsvc
DSM SM LSI Manager	mptctl
Integrated Remote Access Controller (iDRAC)	None
Remote Access Controller	racsvc

What do the directories under srvadmin/linux/custom/ <operating system> contain?

The following table lists the names of the directories in the SYSMGMT/srvadmin/linux/custom/*<operating system>* directory.

Table 9. Names of the Directories Under the srvadmin/linux/custom/<operating system> directory

Name of RPM	Description	Other Server Administrator RPMs required
Server-Instrumentation — This is the core code for Server Administrator. It provides motherboard alerts and contains the CLI that allows to monitor and control Server Administrator, for example, `omconfig`, `omdiag`, and `omreport`. All peripheral packages, except the standalone DRAC support, require all or most of the RPMs in this directory to be installed. ⓘ | **NOTE: You may need to install IPMI drivers for proper functionality.**		
srvadmin-cm	Server Administrator Inventory Collector — Systems management change management inventory collector.	srvadmin-omilcore, srvadmin-deng, and srvadmin-omacore
srvadmin-deng	Server Administrator Data Engine — Systems management provides a data management framework for systems management software.	srvadmin-omilcore

Name of RPM	Description	Other Server Administrator RPMs required
srvadmin-hapi	Server Administrator Hardware Application Programming Interface — This systems management package provides the device drivers and libraries needed by systems management software to access information about the hardware on supported systems.	srvadmin-omilcore
srvadmin-isvc	Server Administrator Instrumentation Service — Server Administrator provides a suite of systems management information for keeping supported systems on the network healthy. Server Administrator Instrumentation Service provides fault management information, prefailure information, and asset and inventory information to management applications. The Instrumentation Service monitors the health of the system and provides rapid access to detailed fault and performance information about the hardware on supported systems. The Instrumentation Service requires installation of systems management device drivers.	srvadmin-omilcore, srvadmin-deng, and srvadmin-hapi
srvadmin-omacore	Server Administrator — Systems management managed mode core and CLI.	srvadmin-omilcore and srvadmin-deng
srvadmin-omhip	Server Administrator Instrumentation Service Integration Layer — Provides Instrumentation CLI.	srvadmin-omilcore, srvadmin-deng, srvadmin-hapi, srvadmin-isvc, and srvadmin-omacore
srvadmin-omilcore	Server Administrator Install Core — This is the core install package that provides the tools necessary for the rest of the Systems management install packages. All Server Administrator RPMs require this RPM.	
srvadmin-syscheck	Package that checks the level of systems management support.	srvadmin-omilcore
add-iDRAC — Software for remote management of third-generation Remote Access Controllers. For example, iDRAC.		
srvadmin-idrac-components	Integrated Remote Access Card Data Populator Remote Access Controller components.	srvadmin-omilcore, srvadmin-deng, srvadmin-hapi, and srvadmin-racser
srvadmin-idracadm	iDRAC Command Interface — The command-line user interface to the Integrated Remote Access Controller.	srvadmin-omilcore
srvadmin-idracdrsc	iDRAC Integration Layer — Integrated Remote Access CLI and Web Plug-in to Server Administrator.	srvadmin-omilcore, srvadmin-deng, srvadmin-rac4 components, and srvadmin-omacore
add-RAC4 — Software for remote management of fourth-generation Remote Access Controllers. For example, DRAC 4.		

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Name of RPM	Description	Other Server Administrator RPMs required
srvadmin-rac4-components	Remote Access Card Data Populator — Remote Access Controller components.	srvadmin-omilcore, srvadmin-deng, srvadmin-hapi, and srvadmin-racsvc
srvadmin-racadm4	RAC Command Interface — The command-line user interface to the Remote Access Controller (RAC).	srvadmin-omilcore
srvadmin-racdrsc4	DRAC 4 Integration Layer — Remote Access CLI and Web Plugin to Server Administrator.	srvadmin-omilcore, srvadmin-deng, srvadmin-rac4 components, and srvadmin-omacore
srvadmin-racsvc	Remote Access Card Managed Node — Remote Access Controller (RAC) services supporting the central administration of server clusters and the remote administration of distributed resources.	srvadmin-omilcore
add-RAC5 — Software for remote management of fifth generation Remote Access Controllers. For example, DRAC 5.		
srvadmin-rac5-components	Remote Access Card Data Populator, DRAC 5 and Remote Access Controller components, DRAC 5.	srvadmin-omilcore, srvadmin-deng, and srvadmin-hapi
srvadmin-racadm5	RAC Command Interface — The command-line user interface to the Remote Access Controller (RAC).	srvadmin-omilcore and srvadmin-hapi
srvadmin-racdrsc5	DRAC 5 Integration Layer — Remote Access CLI and Web Plug-in to Server Administrator.	srvadmin-omilcore, srvadmin-deng, srvadmin-omacore, and srvadmin-rac5 components
add-StorageManagement — Storage Management RAID configuration utility and storage alert software.		
srvadmin-storage	Storage Management — Provides Systems Management Storage Services.	srvadmin-omilcore, srvadmin-deng, and srvadmin-omacore
SA-WebServer — Provides web access to manage the server.		
srvadmin-hapi	Server Administrator Hardware Application Programming Interface — This systems management package provides the device drivers and libraries needed by systems management software to access information about the hardware on supported systems.	srvadmin-omilcore
srvadmin-tomcat	Secure Port Server — Systems Management Managed Node Web Server package.	srvadmin-omilcore, srvadmin-deng, srvadmin-omacore, and srvadmin-jre
srvadmin-jre	Server Administrator Sun Java Runtime Environment — Systems management managed node Java runtime.	srvadmin-omilcore, srvadmin-deng, and srvadmin-omacore
srvadmin-omauth	Provides the authentication files.	srvadmin-omilcore
srvadmin-omcommon	Provides the common framework required by Server Administrator.	srvdamin-omilcore

Name of RPM	Description	Other Server Administrator RPMs required
srvadmin-omilcore	Server Administrator Web Server Install Core — This is the core install package. All Server Administrator Web Server RPMs require this RPM.	
srvadmin-wsmanclient	Operating system-specific WSMan client package.	srvadmin-omcommon and srvadmin-omauth
Remote-Enablement — Manage and monitor the current system using some other remote system.		
srvadmin-cm	Server Administrator Inventory Collector — Systems management change management inventory collector.	srvadmin-omilcore, srvadmin-deng, and srvadmin-omacore
srvadmin-deng	Server Administrator Data Engine — Systems management provides a data management framework for systems management software.	srvadmin-omilcore
srvadmin-hapi	Server Administrator Hardware Application Programming Interface — This systems management package provides the device drivers and libraries needed by systems management software to access information about the hardware on supported systems.	srvadmin-omilcore
srvadmin-isvc	Server Administrator Instrumentation Service — Server Administrator provides a suite of systems management information for keeping supported systems on the network healthy. Server Administrator Instrumentation Service provides fault management information, prefailure information, and asset and inventory information to management applications. The Instrumentation Service monitors the health of the system and provides rapid access to detailed fault and performance information about the hardware on supported systems. The Instrumentation Service requires installation of systems management device drivers.	srvadmin-omilcore, srvadmin-deng, and srvadmin-hapi
srvadmin-omacore	Server Administrator — Systems management managed mode core and CLI.	srvadmin-omilcore and srvadmin-deng
srvadmin-omcommon	Provides Common Framework required by Server Administrator.	srvadmin-omilcore
srvadmin-omhip	Server Administrator Instrumentation Service Integration Layer — Provides Instrumentation CLI.	srvadmin-omilcore, srvadmin-deng, srvadmin-hapi, srvadmin-isvc, and srvadmin-omacore
srvadmin-omilcore	Server Administrator Install Core — This is the core install package that provides the	

Name of RPM	Description	Other Server Administrator RPMs required
	tools necessary for the rest of the Systems management install packages. All Server Administrator RPMs require this RPM.	
srvadmin-ssa	Enables management of the system from a remote system on which Server Administrator Web Server is installed, using WS-Man interfaces.	srvadmin-omacore, srvadmin-omhip, and srvadmin-isvc.
srvadmin-syscheck	Package that checks the level of systems management support.	srvadmin-omilcore

What are the additional components that can be installed on a system that already has Server Administrator installed?

There are a few additional components that can be installed on a system that already has Server Administrator installed. For example, you can install Online Diagnostics on a system that has previously been installed with managed system software. On such a system, while uninstalling Server Administrator, only those RPM packages that are not required by any of the newly installed components are uninstalled. In the above example, Online Diagnostics requires packages such as - **srvadmin-omilcore-X.Y.Z-N** and **srvadmin-hapi-X.Y.Z-N**. These packages are not uninstalled during an uninstallation of Server Administrator.

In this case, if you try to install Server Administrator later by running the `sh srvadmin-install.sh` command, the following message is displayed:

```
Server Administrator version X.Y.Z is currently installed.
```

Installed components are:

- srvadmin-omilcore-X.Y.Z-N
- srvadmin-hapi-X.Y.Z-N

Do you want to upgrade Server Administrator to X.Y.Z? Press (y for yes| <Enter> to exit):

On pressing <y>, only those Server Administrator packages (in the above example), **srvadmin-omilcore-X.Y.Z-N** and **srvadmin-hapi-X.Y.Z-N** residing on the system are upgraded.

If you have to install other systems management components as well, the `sh srvadmin-install.sh` command has to be run once again.

What happens if I install the RPM package on an unsupported system or on an unsupported operating system?

If you try to install the RPM packages on an unsupported system or an unsupported operating system, you may see unpredictable behavior during the install, uninstall, or during use of the RPM package. Most of the RPM packages have been written and tested for supported systems and the Linux versions listed in the readme.

What daemons run on Red Hat Enterprise Linux and SUSE Linux Enterprise Server operating systems after Server Administrator is started?

The daemons that run on Red Hat Enterprise Linux and SUSE Linux Enterprise Server operating systems depend on what is installed and what is enabled to run. The following table displays the daemons that typically run for a full install:

Table 10. Daemons that Run on Red Hat Enterprise Linux and SUSE Linux Enterprise Server Once Server Administrator is Started

Daemon Name	Name in Red Hat Enterprise Linux and SUSE Linux Enterprise Server
For RPMs in the srvadmin-base directory	
dsm_sa_datamgr32d	DSM SA Data Manager — Server Administrator data manager daemon started by DSM SA Data Engine service.
dsm_sa_eventmgr32d	DSM SA Event Manager — Server Administrator event and logging daemon started by DSM SA Data Engine service.
dsm_sa_snmp32d	DSM SA SNMP daemon — Server Administrator SNMP daemon started by DSM SA Data Engine service.
dsm_om_shrsvc32d	DSM SA Shared Services — Server Administrator core daemon.
For RPMs in the SA-WebServer directory	
dsm_om_connsvc32d	DSM SA Connection Services — Server Administrator Web server daemon.
For systems that support DRAC: add-RAC	
racsvc	DRAC Administrator daemon.

What kernel modules are loaded when Server Administrator is started?

This is dependent on the type of systems instrumentation. The following table displays the kernel modules loaded when Server Administrator is started.

Table 11. Kernel Modules Loaded When Server Administrator Services are Started

Driver Name	Description
For a system with IPMI	
dell_rbu	BIOS Update Driver
ipmi_devintf	IPMI device driver
ipmi_msghandler	IPMI device driver
ipmi_si	IPMI device driver — For systems running Red Hat Enterprise Linux or SUSE Linux Enterprise Server

Driver Name	Description
For a TVM system	
dcdbas	Systems Management Base Driver
dell_rbu	BIOS Update Driver
For an ESM system	
dcdbas	Systems Management Base Driver
dell_rbu	BIOS Update Driver
For support of Server Administrator Storage Systems	
mptctl	Device driver for LSI RAID

When I run srvadmin-cm (Server Administrator Inventory Collector) it displays error messages. What do I do?

If you are using a system prior to 11th generation of PowerEdge servers running on a supported 64-bit Linux operating system, the srvadmin-cm RPM installs only the 32-bit dependent RPMs. This is why the srvadmin-cm RPM displays error messages when it is run on a 64-bit operating system. To ensure srvadmin-cm functions as expected, the following RPMs must be preinstalled on servers prior to 11G running supported 64-bit Linux operating system.

glibc.i686

compat-libstdc++.i686

libstdc++.i686

zlib.i686

libxml2.i686

Linux Installer Packages

This section lists the Linux installer packages.

Table 12. Meta RPMs

RPM	Description	Dependent packages	Required for	Systems Management Software
				9.1
srvadmin-all	Meta package for installing all Server Administrator features	srvadmin-base, srvadmin-idrac, srvadmin-rac4, srvadmin-rac5, srvadmin-standardAgent, srvadmin-storageservices, srvadmin-webserver	Complete Server Administrator features	Y
srvadmin-base	Meta package for installing the Server Agent	srvadmin-cm, srvadmin-omacore, srvadmin-smcommon	Server Instrumentation, SNMP monitoring, and Server Administrator CLI	Y
srvadmin-standardAgent	Meta package for installing the Standard Server Agent	srvadmin-cm, srvadmin-itunnelprovider, srvadmin-smcommon	Enabling remote management using Server Administrator Web Server	Y
srvadmin-webserver	Meta package for installing the Server Administrator Web Server feature	srvadmin-smcommon, srvadmin-smweb, srvadmin-tomcat	Server Administrator Web Server for local and remote node management	Y
srvadmin-storageservices	Meta package for installing the Server Administrator Storage Services feature	srvadmin-cm, srvadmin-megalib, srvadmin-smcommon, srvadmin-storage, srvadmin-storelib, srvadmin-sysfsutils	Storage Management using Server Administrator GUI/CLI	Y
srvadmin-rac4	Meta RPM for RAC4 components	srvadmin-omilcore, srvadmin-rac-components, srvadmin-rac4-populator, srvadmin-racadm4, srvadmin-racdrsc, srvadmin-racsvc	RAC 4 management using Server Administrator GUI/CLI, RAC4 tools	Y
srvadmin-rac5	Meta RPM for RAC5 components	srvadmin-isvc, srvadmin-omilcore, srvadmin-rac-components, srvadmin-racadm4, srvadmin-racadm5, srvadmin-racdrsc	RAC 5 management using Server Administrator GUI/CLI, RAC5 tools	Y

RPM	Description	Dependent packages	Required for	Systems Management Software
				9.1
srvadmin-idrac	Meta RPM for iDRAC components	srvadmin-argtable2, srvadmin-deng, srvadmin-idrac-ivmcli, srvadmin-idrac-vmcli, srvadmin-idracadm, srvadmin-isvc, srvadmin-omcommon, srvadmin-omilcore, srvadmin-rac-components, srvadmin-racadm4, srvadmin-racdrsc	iDRAC management using Server Administrator GUI/CLI, iDRAC tools	Y
srvadmin-server-snmp	Meta package that contains dependency information to automatically pull in the Server Administrator Server SNMP feature	srvadmin-base,srvadmin-deng-snmp, srvadmin-isvc-snmp	Server SNMP feature	Y
srvadmin-server-cli	Meta package that contains dependency information to automatically pull in the Server Administrator Server CLI feature	srvadmin-base, srvadmin-omacore	Server CLI feature	Y
srvadmin-storageservices-snmp	Meta package that contains dependency information to automatically pull in the Server Administrator Storage SNMP feature	storageservices, srvadmin-storage-snm	Storage SNMP feature	Y
srvadmin-storageservices-cli	Meta package that contains dependency information to automatically pull in the Server Administrator Storage CLI feature	storageservices, srvadmin-storage-cli	Storage CLI feature	Y

Table 13. Server Instrumentation and SNMP monitoring

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-omilcore	Core Install package that provides tools for the	pciutils, smbios-utils-bin	Installing and functioning of Server Administrator	Y

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
	systems management install packages			
srvadmin-deng	Data Engine stores and manages objects for systems management	srvadmin-omilcore	Server Instrumentation and SNMP monitoring	Y
srvadmin-hapi	Provides low-level hardware interface for systems management	None	Server Instrumentation	Y
srvadmin-isvc	Provides systems management interface to local and remote systems management	srvadmin-deng, srvadmin-omilcore	Server Instrumentation and SNMP monitoring	Y
libsmbios	Provides SMBIOS library to get standard BIOS tables	None	Installation and software updates	Y
smbios-utils-bin	Provides SMBIOS Utility to get system information	None	Installation	Y

Table 14. Packages needed for local management that are used by GUI and CLI components

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-omcommon	Common framework or libraries for GUI/CLI	srvadmin-omilcore	Server Administrator GUI/CLI	Y
srvadmin-omacore	Provides plugins that act as interfaces between back end and GUI/CLI. Also provides OM CLI tools.	srvadmin-omilcore	Server Administrator GUI/CLI and infrastructure for software updates	Y
srvadmin-xmlsup	XML support library	None	Server Administrator GUI/CLI	Y
srvadmin-libxslt	XSLT support library * Applicable on VMware ESX only	None	Server Administrator GUI/CLI	Y
srvadmin-cm	Change Management inventory collector. Feeds software inventory data to management station applications	srvadmin-omacore	Software inventory and updates	Y
srvadmin-adoslog	Management interface	srvadmin-omilcore	Replicating Server Administrator Events in OS Log	Y

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-omacs	Server Administrator OMACS	srvadmin-omcommon srvadmin-omilcore	Common services bundled in helper library	Y
srvadmin-ominst	Server Administrator Core	None	Server Instrumentation Components	Y

Table 15. Server Administrator Web Server (GUI) for Local and Remote Management

RPM	Description	Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-jre	Provides JAVA Runtime for web server	srvadmin-omilcore	Server Administrator GUI	Y
srvadmin-iws	Server Administrator Web server and GUI package	srvadmin-omilcore, srvadmin-omcommon, srvadmin-jre, openwsman-client, libwsman1	Server Administrator GUI	N
srvadmin-tomcat	Server Administrator Web server	srvadmin-jre, srvadmin-omcommon, srvadmin-omilcore	Server Administrator GUI	Y
openwsman-client	Openwsman client libraries	None	Server Administrator GUI to manage remote nodes using WSMAN	Y
libwsman1	Openwsman libraries used by client and server components	None	Openwsman support library	Y

Table 16. Server Administrator Remote Enablement (Standard Agent)

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-itunnelprovider	The Small Footprint CIM Broker (SFCB) provider that enables remote management of the server	libcmpiCppImpl0, openwsman-server, sblim-sfcb sblim-sfcc	Enabling remote management of server	Y
libwsman1	Openwsman libraries used by client and server components	None	Openwsman support library	Y
openwsman-server	Openwsman server and service libraries *N/A on VMware ESX	None	Enabling remote management of server	Y

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
sblim-sfcb	Small Footprint CIM Broker (sfcb) - CIM server conforming to the CIM Operations over HTTP protocol. *N/A on VMware ESX	None	Enabling remote management of server	Y
sblim-sfcc	Small Footprint Common Information Model (CIM) Client Library (sfcc) Runtime Libraries *N/A on VMware ESX	None	Enabling remote management of server	Y
libcmpiCppImpl0	Provides helper library to implement Common Manageability Programming Interface (CMPI) C++ plugins into SFCB *N/A on VMware ESX	None	Enabling remote management of server	Y

Table 17. Storage Instrumentation, SNMP Monitoring, GUI and CLI Plugins

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-realssd* * For Red Hat Enterprise Linux 6.0 and SUSE Linux Enterprise Server 11	Meta package for installing management libraries for PCIe SSDs	None	Peripheral Component Interconnect Express Solid-State Drives (PCIe SSDs) management	Y
srvadmin-storage	Core interface library for storage management	srvadmin-deng, srvadmin-isvc, srvadmin-megalib, srvadmin-omilcore, srvadmin-smcommon, srvadmin-storelib	Storage instrumentation, SNMP monitoring and CLI (for storage management)	Y
srvadmin-storelib	LSI utility libraries for storage management	srvadmin-storelib-sysfs	Storage instrumentation	Y
srvadmin-storelib-sysfs	Provides library for interfacing with the kernel's sys filesystem. Used by LSI storelib libraries *N/A for VMware ESX	None	Storage instrumentation	Y
srvadmin-sysfsutils	Provide utilities for interfacing with sysfs file system. Used by the	None	Storage instrumentation	Y

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
	storage management libraries			
srvadmin-megalib	LSI utility libraries for storage management of PERC 4 controllers. *N/A for 64-bit OMSA installation, and VMware ESX.	None	Storage instrumentation of PERC 4 controllers	Y
srvadmin-smcommon	Common framework or libraries for GUI/CLI (for storage management)	None	Storage management using Server Administrator GUI/CLI	Y
srvadmin-smweb	GUI plugins for storage management	srvadmin-omcommon, srvadmin-smcommon	Storage management using Server Administrator GUI	Y
srvadmin-storage-cli	Storage Management CLI Interface	srvadmin-storage	CLI interface access for Storage Management	Y
srvadmin-storage-snmp	Storage Management CLI Interface	srvadmin-deng-snmp, srvadmin-storage	Storage-related SNMP queries and SNMP Traps	Y
srvadmin-deng-snmp	Server Administrator SNMP Framework	srvadmin-deng	Server Administrator SNMP Framework	Y
srvadmin-isvc-snmp	Server SNMP module	srvadmin-hapi, srvadmin-isvc	Server and operating system-related SNMP Queries and SNMP Traps	Y

Table 18. RAC Instrumentation, SNMP Monitoring, GUI and CLI Plugins

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
srvadmin-racsvc	RAC services to manage DRAC 4	setserial, srvadmin-omilcore	DRAC 4 instrumentation	Y
srvadmin-rac-components	RAC data populator for DRAC 4	None	DRAC 4 instrumentation and SNMP monitoring	Y
srvadmin-racadm4	Provides CLI tools for DRAC 4 administration	None	RAC CLI tools for DRAC 4	Y
srvadmin-rac5-components	RAC Data populator for DRAC 5	srvadmin-omilcore, srvadmin-hapi, srvadmin-deng	DRAC 5 instrumentation and SNMP monitoring	Y
srvadmin-racadm5	Provides CLI tools for DRAC 5 administration	srvadmin-hapi, srvadmin-omilcore	RAC CLI tools for DRAC 5	Y
srvadmin-idrac7	RAC data populator for iDRAC7	srvadmin-argtable2, srvadmin-deng, srvadmin-idrac-vmcli,	iDRAC7 instrumentation and SNMP monitoring	Y

RPM	Description	OM Dependant packages	Required for	Systems Management Software
				9.1
		srvadmin-idracadm7, srvadmin-isvc, srvadmin-omcommon, srvadmin-omilcore, srvadmin-rac-components, srvadmin-racadm4, srvadmin-racdrsc		
srvadmin-idracadm	Provides CLI tools for iDRAC administration	srvadmin-argtable2, srvadmin-omilcore	RAC CLI tools for iDRAC	Y
srvadmin-idracadm7	Provides CLI tools for iDRAC7 administration	srvadmin-argtable2 srvadmin-omilcore	RAC CLI tools for iDRAC7	Y
srvadmin-racdrsc	RAC CLI and web plugin to Server Administrator for RAC 4, 5 and iDRAC	None	RAC management using Server Administrator GUI/CLI	Y
srvadmin-rac-components	RAC SNMP components for RAC 4, 5 and iDRAC	None	RAC instrumentation and SNMP monitoring	Y
srvadmin-rac4-populator-	RAC Data populator for DRAC 4	srvadmin-omilcore	DRAC 4 instrumentation	Y
srvadmin-argtable2	Library for parsing GNU style command-line argument. Used by RAC 5 and iDRAC packages	None	RAC CLI tools for RAC 5 and iDRAC management	Y
srvadmin-idrac-ivmcli	Provides CLI tools that provide virtual media features from the management station to the iDRAC in the remote modular system	None	RAC CLI tools for virtual media feature	Y
srvadmin-idrac-vmcli	Provides CLI tools that provide virtual media features from the management station to the iDRAC in the remote Rack and Tower system	None	RAC CLI tools for virtual media feature	Y