ES182SVR00518
SECTION 3 - MX7000 INSTALLATION-SSP

DOWNLOADABLE CONTENT

Table of Contents

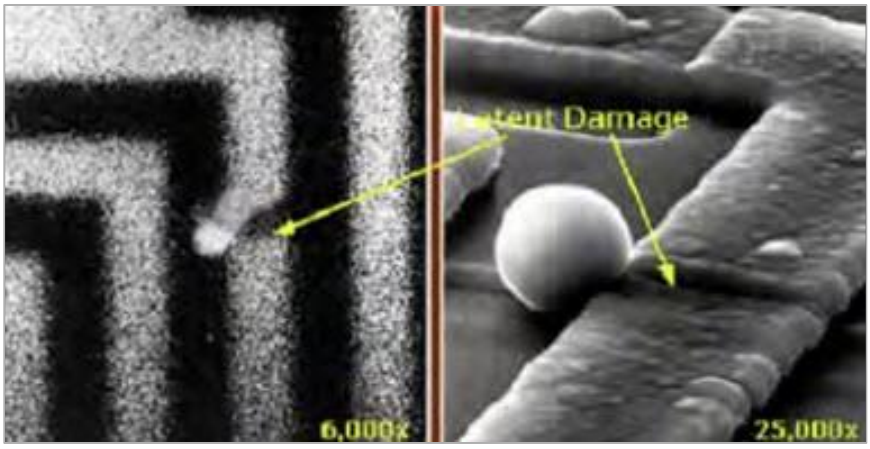
Dell EMC PowerEdge MX7000 Installation

ElectroStatic Discharge

ElectroStatic Discharge (ESD)

Electrostatic discharge (ESD) is a major concern when you handle sensitive components such as:

- Expansion cards
- Processors
- Memory DIMMs
- System boards



*Double-click **the image** to enlarge.*

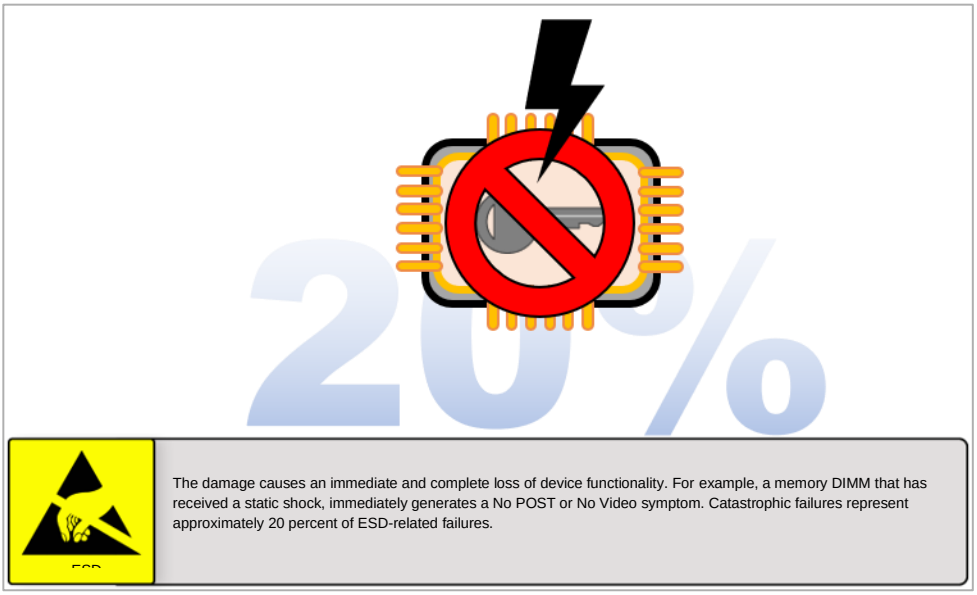
Due to the increased density of semiconductors used in recent Dell Technologies products, the sensitivity to static damage is now higher than in earlier Dell Technologies products. For this reason, some previously approved methods of handling parts are no longer applicable.

Caution: A slight charge can cause damage to the circuits on these components causing intermittent problems or shortening the life span.

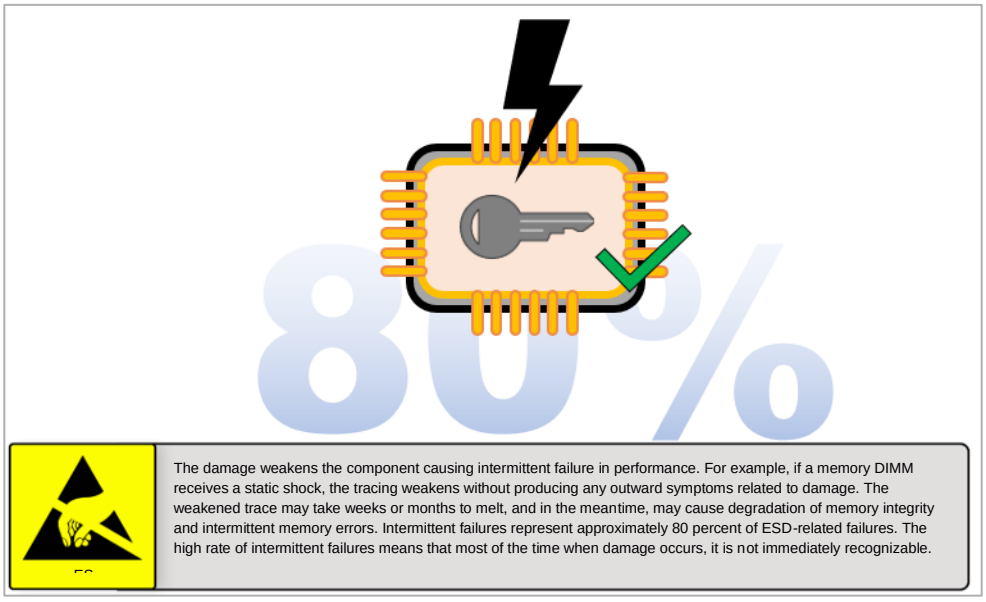
Types of ESD

There are two recognized types of ESD damage:

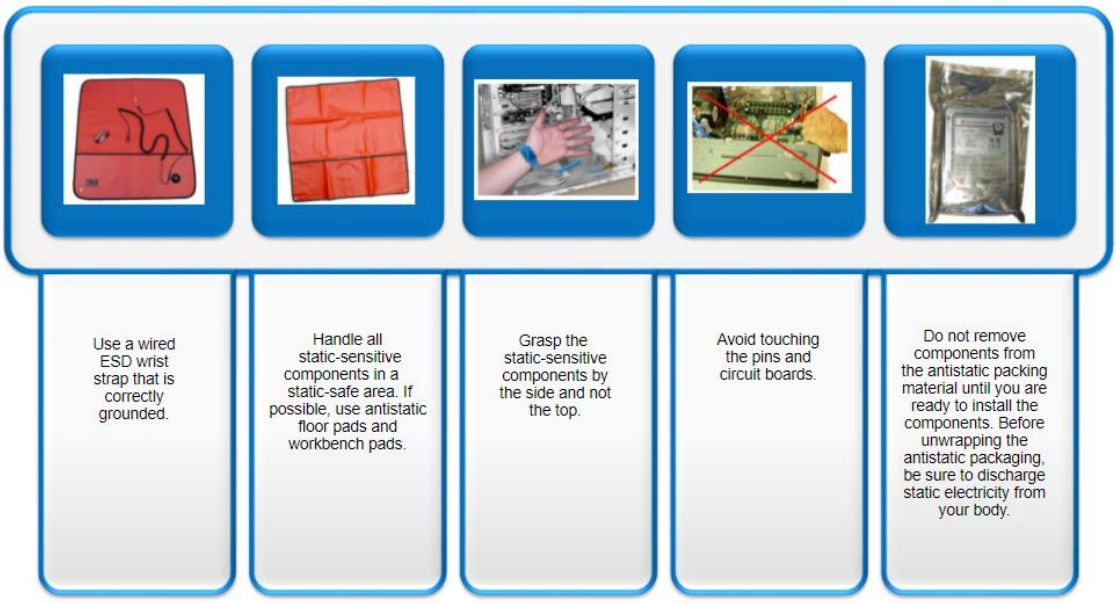
Catastrophic



Intermittent



How to Avoid ESD Damage



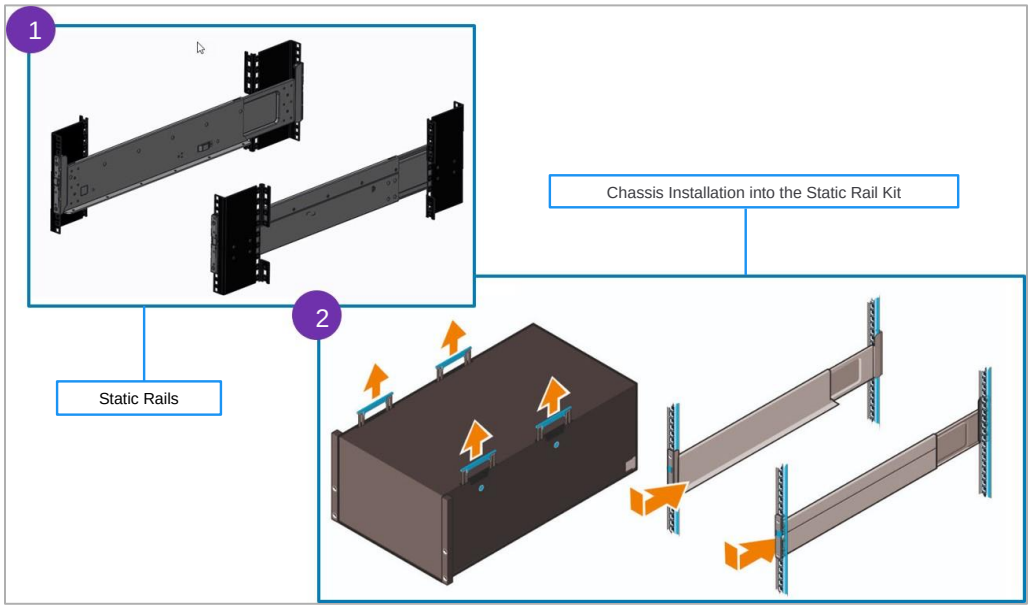
Caution: Before unwrapping the anti-static packaging, be sure to discharge static electricity from your body by using a grounded ESD wrist strap.

Rack Installation

Rack Installation

Static Rail Kit

A static rail kit is supported for the chassis. Due to the overall weight, there is no support for 2-post racks. A strain relief bar is provided for power cables. This bar adds 95 mm of additional depth to the system, and therefore works best in 1200 mm depth racks.

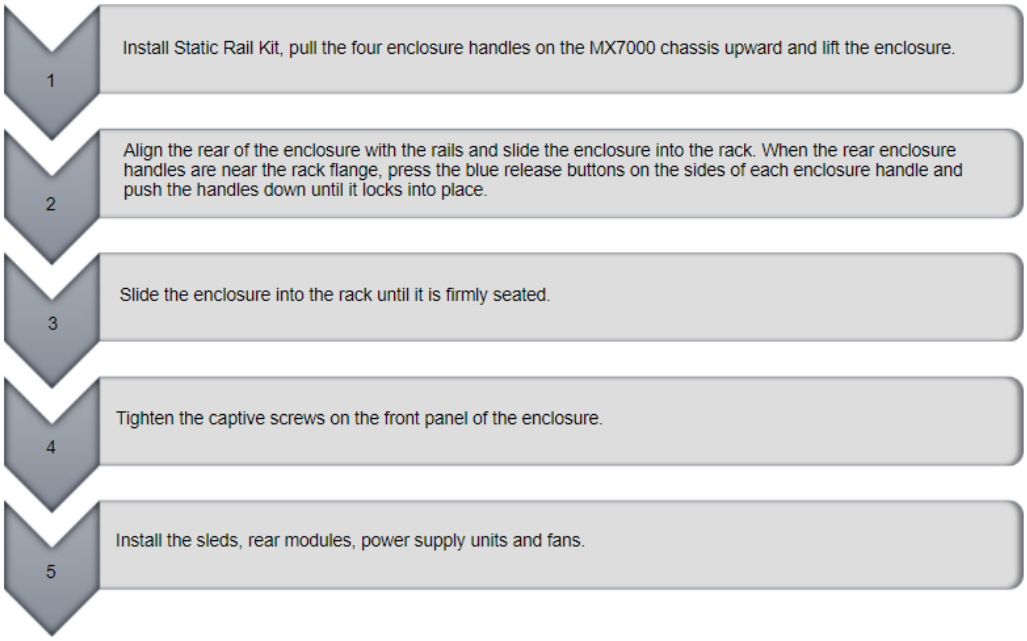


*Double click **the image** to enlarge.*

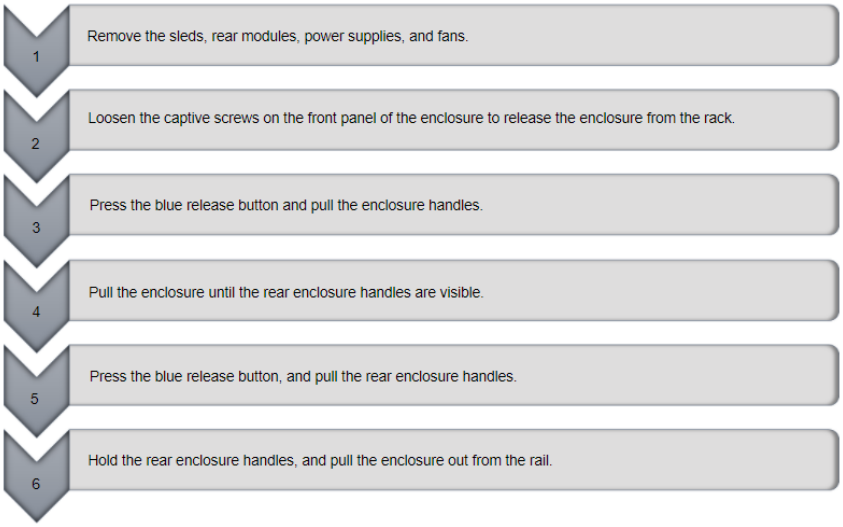
Rack Installation and Removal

The minimum weight of the PowerEdge MX7000 is 180 lbs (82 kg), and maximum weight (fully populated) is 400 lbs (182 kg).

Installing the enclosure into the rack



Removing the enclosure from the rack



Rack Installation

The video demonstrates the process Rack Installation. *Click **the video navigation play icon** to start the video.*

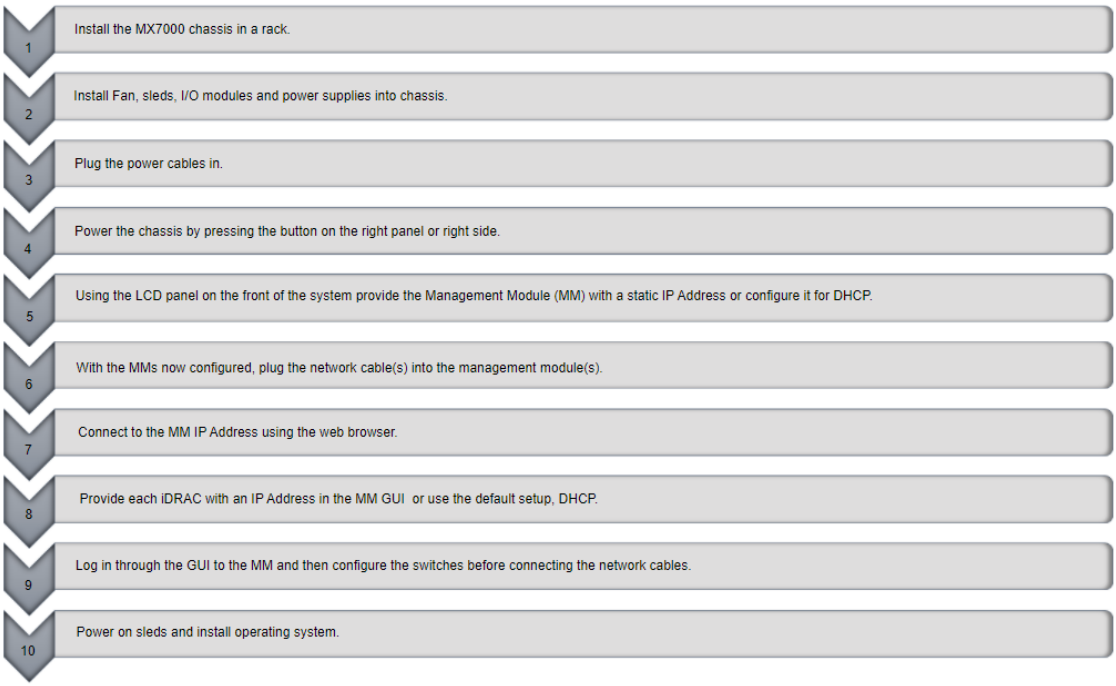
Movie:

The web version of this content contains a movie.

Warning: To avoid injury, remove the sleds, rear modules, power supplies and fans before attempting to move the chassis to reduce the weight.

Cabling and Chassis Deployment

Steps to cable and deploy an MX7000 chassis:



Strain Relief Bar (SRB)

Strain Relief Bar is used to help and manage the numerous cables that are associated with rack-mounted servers. SRB is a cable management solution, which attaches to the back of the rails via the strain relief. Cables from the back of the chassis are placed across the top of the SRB and are secured by straps.

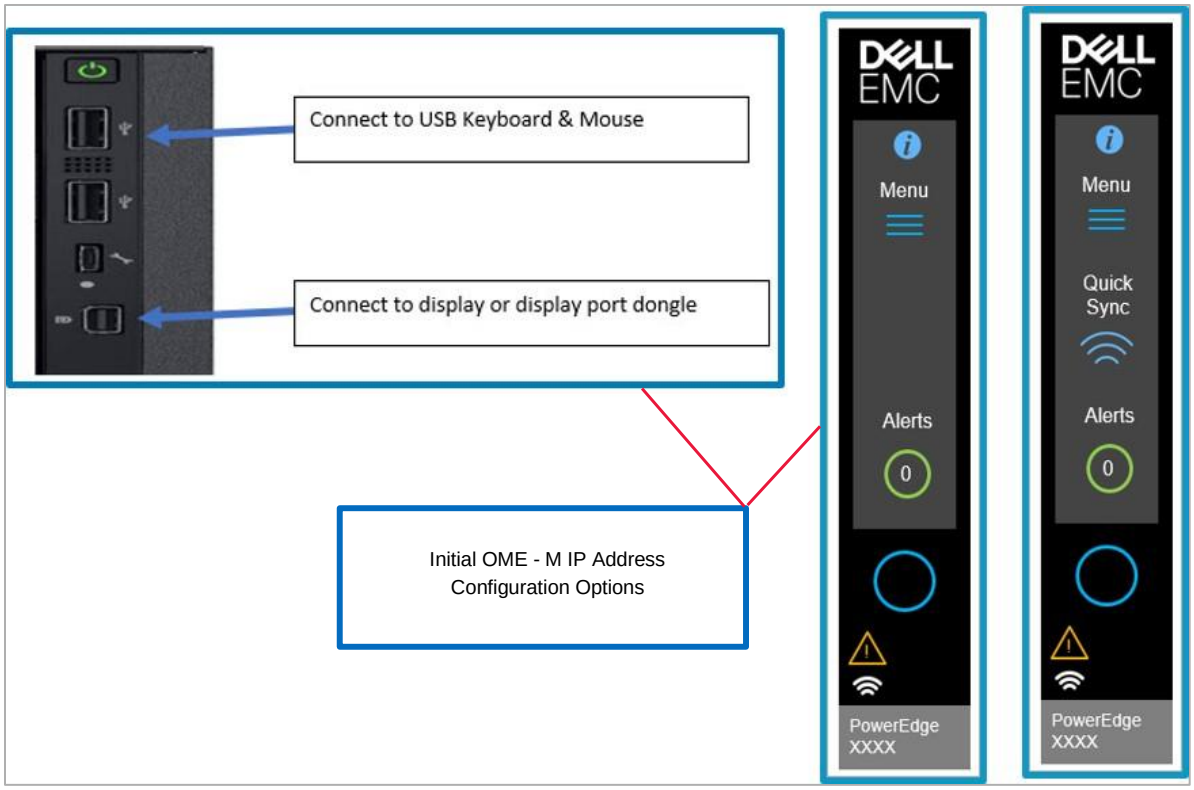
*Double click **the image** to enlarge.*

Important: Static rails do not support the ability to service the enclosure while in the rack and are not compatible with a Cable Management Arm. An SRB is provided with each rail kit to organize and secure the power cables exiting the back of the server.

Setting the Initial OME-M IP Address

The IP address can be seen or changed to a static address via the LCD or KVM. An Initial OME-M IP address must be configured:

- When a chassis is powered on for the first time.
- When an administrator has reset the configuration to factory defaults.



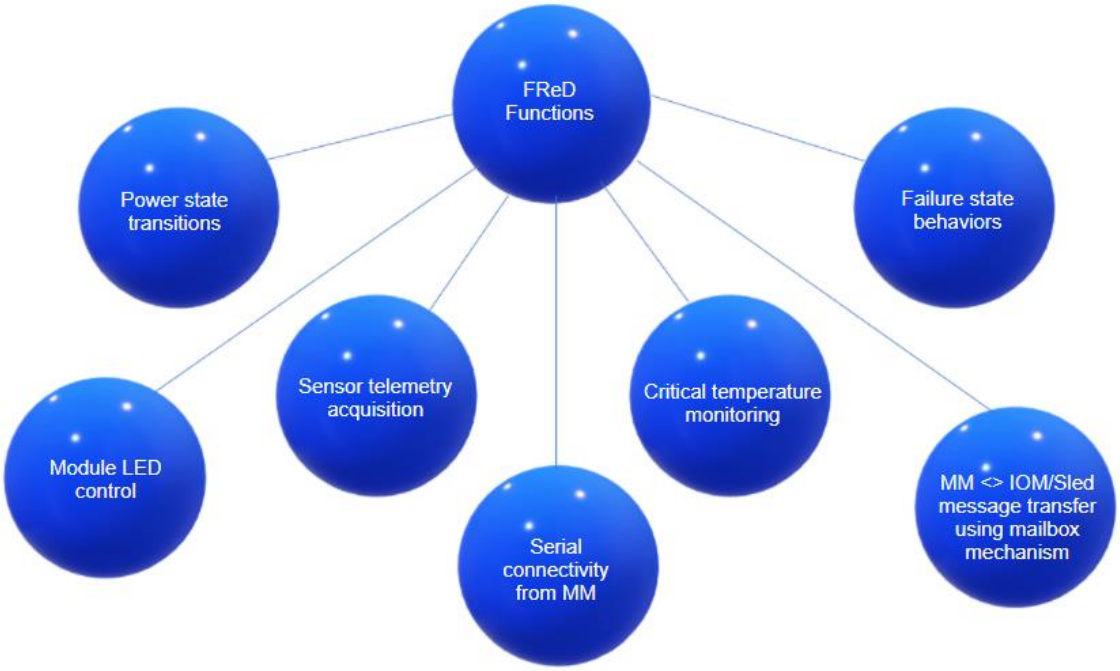
*Double click **the image** to enlarge.*

Fabric Resource Director (FReD)

FReD is a microcontroller-based reference circuit that provides a consistent management interface between the Management Module (MM) and the other hardware.

- The MM communicates with Input and Output Modules (IOMs), storage sleds via the Fabric Resource Director (FReD).
- FReD communicates with MM via an I2C connection.
- When the MM firmware is updated, the FReD microcode on the IOM/sled is updated simultaneously. Process is automatic and does not require a reboot of the IOM/sled.

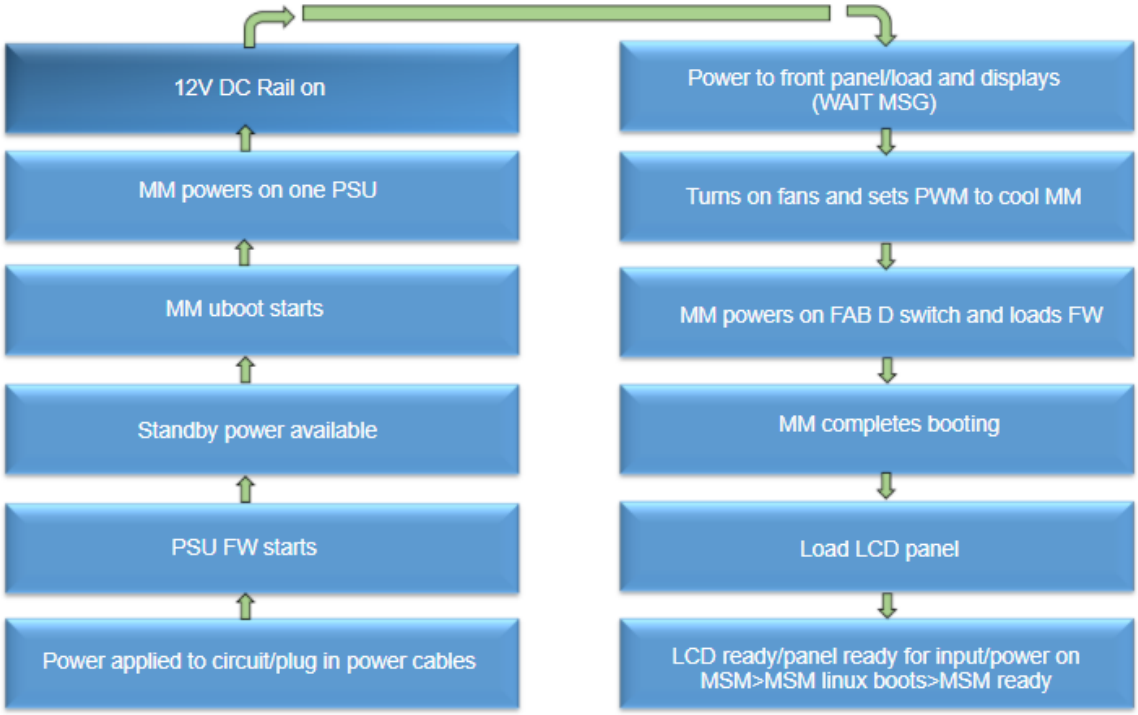
FReD functions



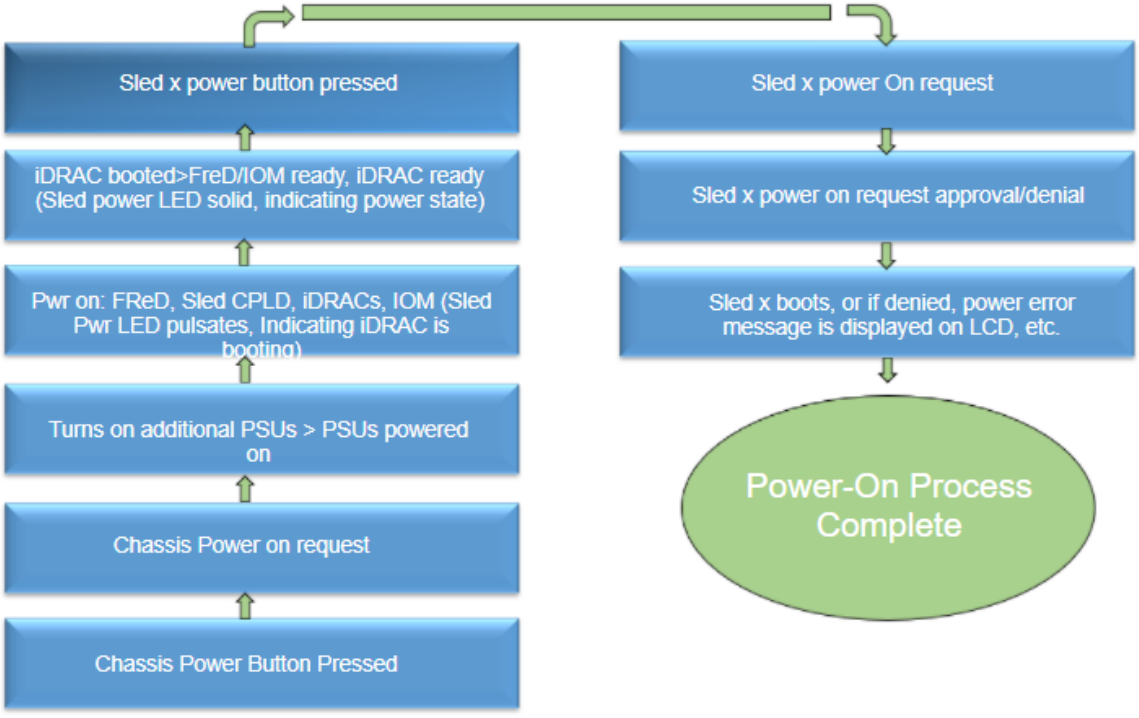
*Double click **the image** to enlarge.*

Power-On Sequence

Power Applied to Chassis



After Power Button on Chassis Is Pressed

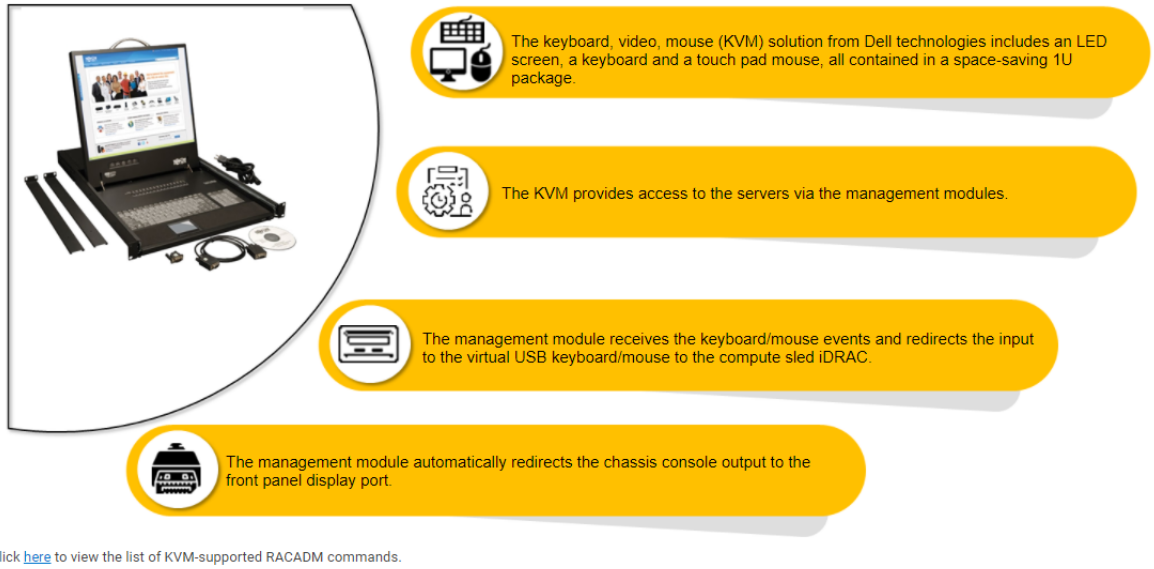


KVM

KVM

The PowerEdge MX7000 supports keyboard, video, mouse (KVM) which provides access to the servers by the management modules (MM). The KVM solution supported ports for the PowerEdge MX7000 enclosure are:

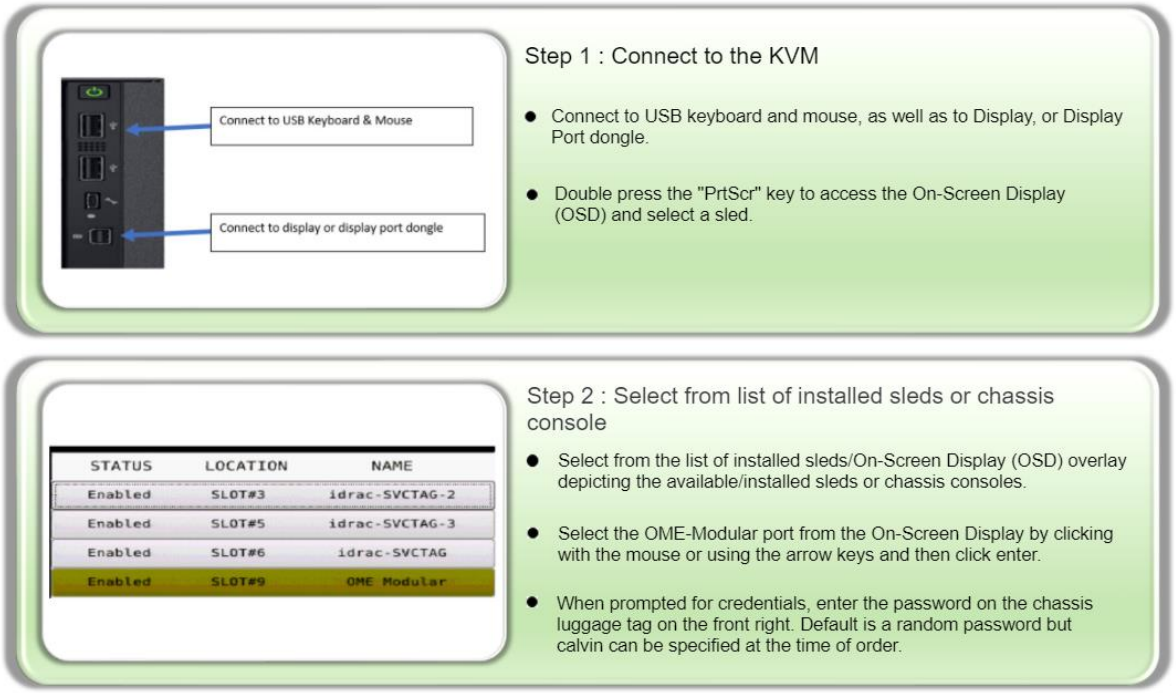
- Mini display port
- Mini display port to VGA adapters
- Mini display port to display port cables



Click here to view the list of KVM-supported RACADM commands.

Steps to Connect to the KVM

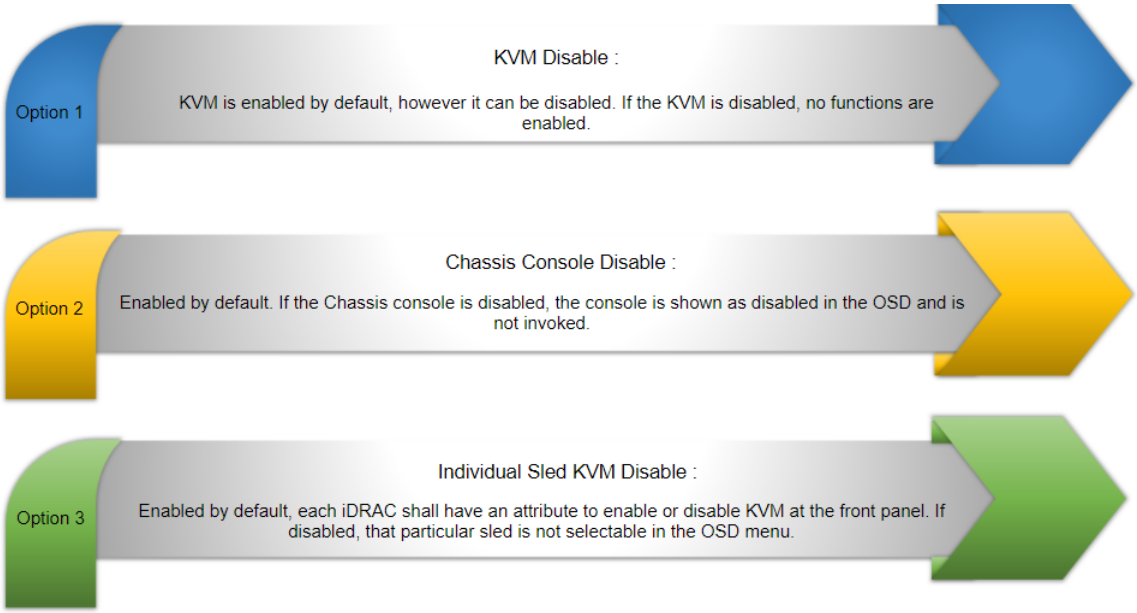
The following steps are used to connect to the KVM:



Note: There is no KVM button (sometimes, it can be seen as an example in other modular platforms). Instead, The KVM uses an On-Screen Display (OSD) overlay to display a list of the installed sleds or chassis consoles to select from.

How to Disable the KVM

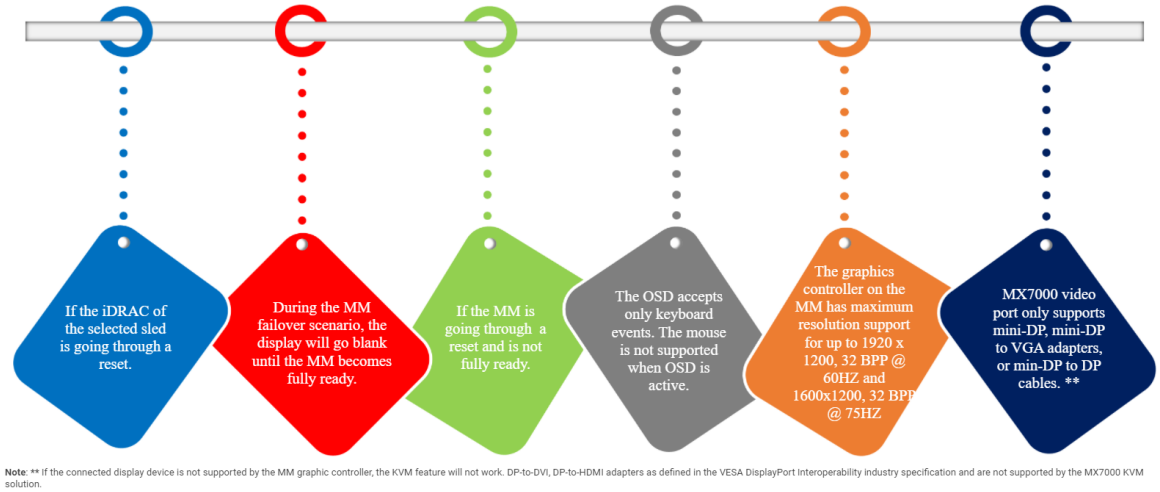
The KVM is disabled in the management Module (MM) GUI through the following options:



Important: The sled slot selection is not persistent over MM reset or reset to factory default. After a reset, no sleds will be selected. The “wrench” port on the right control panel is available for “chassis direct” from 1.10.00 firmware and above.

KVM Feature Limitations

The KVM feature will not work in the following scenarios:



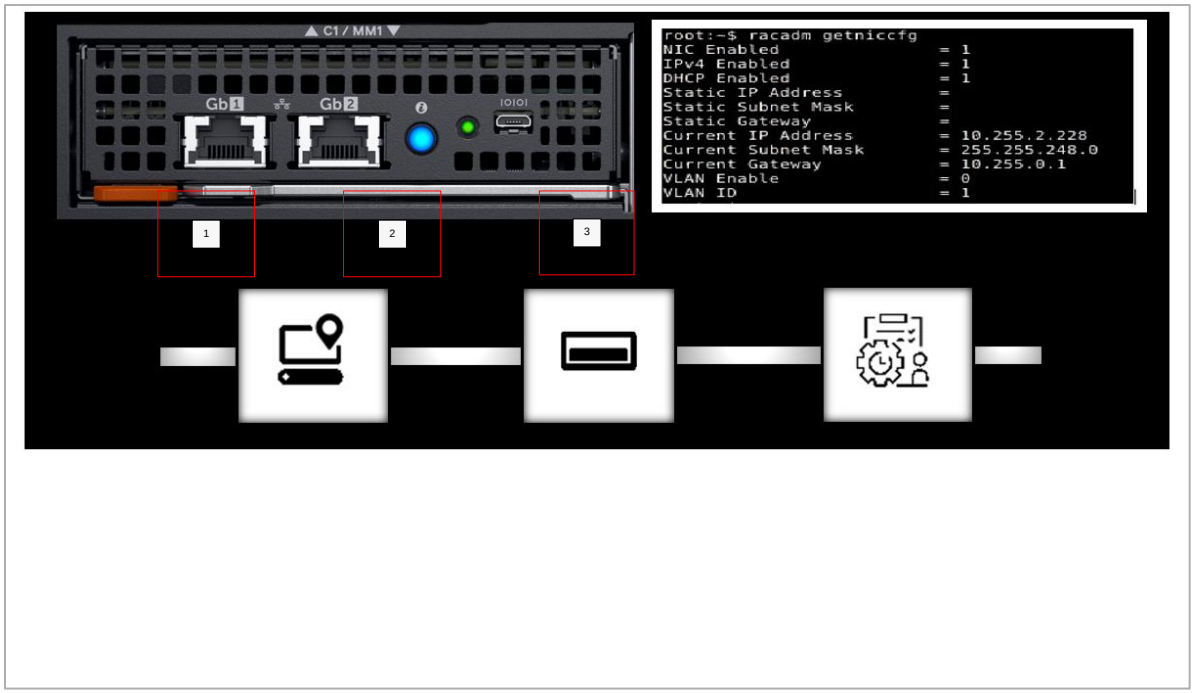
Note: ****** If the connected display device is not supported by the MM graphic controller, the KVM feature will not work. DP-to-DVI, DP-to-HDMI adapters as defined in the VESA DisplayPort Interoperability industry specification and are not supported by the MX7000 KVM solution.

Important: As the video source, the PowerEdge MX7000 management module does not comply with the dual-mode output specification and excludes:

- **Detection of DVI/HDMI mode.**
- **Support Display Data Channel (DDC) master for monitor communication.**

RACADM Commands

Click **each icon** to learn more about RACADM commands.



1: The "***racadm help***" command is used to view the subset of RACADM commands. Use the command "***racadm setniccfg***" to set the static IPv4 address.

2: A serial interface is used to establish a connection to a laptop via a micro USB port on the rear of the management module. A terminal emulator opens with the settings "115,200 baud, 8 data bits, and 1 stop bit".

3: The initial screen then enables a selection of a login to the management module, networking I/O modules or servers (iDRAC). Once the management module is selected, the management module would prompt for the credentials on the luggage tag and provide the same RACADM command options as using the KVM.

Important: It is possible to disable all the chassis interfaces, including: the LCD, web UI, remote RACADM, SSH, and KVM. The exception to this is the serial interface, as the interface will be used as a last resort recovery access point.

LCD Setup

Left Rack Ear LCD Panel

The Online Course Contains an Interaction Here.

Discussion

Discussion: Refer to the instructor note section and discuss.

Discussion Notes:

The Left Control Panel (left rack ear) is intended to provide support for at-the-box-management or to do a quick glimpse of the system health. While standing in front of the MX7000 chassis, the control panel is on the left ear of the chassis.

The Left Control Panel offers three SKUs :

- LED only
- LCD only
- LCD with Quick Sync 2

The LCD only option and LCD with QuickSync differ as the LCD only option will not have the QuickSync status symbol/menu.

The LCD turns off after 10 minutes of inactivity.

For additional information regarding the LED-Only option, see the notes section in the participant's guide. Or, see the most recent copy of the PowerEdge MX7000 Source book.

If a customer does not have the LCD, but has the LED option left panel, the following options are as follows.

- Use the serial port/USB connector on the controller.
- Use the KVM and select from the menu in the EC controller - you would then need to enter the credentials and use the following RACADM command:
  - `racadm setniccfg -s <IPv4Address> <netmask> <IPv4 gateway>`
- QuickSync if the chassis comes with it.

The LCD touch panel enables you to scroll or swipe on the screen. The options available on the LCD touch panel are:

- Welcome Screen - Select native language and the default LCD home page.
- Main Menu - Access the LCD functionality such as Identify, Settings, QuickSync, Alerts, Help, and Powered off.
- QuickSync - Connect OpenManage Mobile to the enclosure.
- Alerts - View a list of all the critical and warning alerts of the enclosure.
- Network Settings - View and configure the chassis management IP address.
- LCD Configuration - Configure the LCD options such as View and Modify, View only, Disabled, Present, and Not present.
- Settings - Edit the Network settings, LCD Language, and Home screen.
- Service Interaction - Displays the impact on drive mapping when a server or sled is replaced in the enclosure.
- System Info - Displays the Model number, Asset tag, and Service tag of the enclosure.
- Chassis Power Off - Perform a Shutdown or Graceful shutdown.

The LCD fulfills four primary use cases:

OpenManage mobile icon shown below:

- Initial deployment of the chassis - for setting and viewing the chassis management controller networking information (IP, subnet, DHCP, MAC Address, so on).
- Fault/warning display - Text for specific warning at the FRU level, device affected and error code. (since string of text is too long for the LCD screen users must search support.dell.com or MM EEMI message repository for the resolution.
- QuickSync - Connect and disconnect from OpenManage Mobile.
- Service interaction - indicate that a new server has been inserted into a compute sled slot that has external drives mapped to it. Also, ask for acknowledgment so the tech can decide if this is a rip-n-replace where all previous storage mappings will be pushed back down by the MM or if it is a new deployment where the mappings must be cleared.

Chassis Configuration

Chassis Configuration

Chassis Deployment Wizard

When first logging into the web UI, a Getting Started Wizard (GSW) is displayed for initial chassis configuration. The GSW can be relaunched, by logging in to OME-M and clicking **Configuration** and then **Initial Configuration**. *Click **Get Started** for a guided walk-through of chassis deployment wizard.*

The web version of this content contains an interactive activity.

Configuring I/O Modules

There are two ways to configure the IP address for the I/O modules:

DHCP: DHCP is the default IP address mode. When using DHCP, the switch obtains an IP address, subnet mask and default gateway from the DHCP server. The DHCP client connects to a DHCP server that is on the same subnet as the switch. Use a static IP address when the DHCP server is not on the same subnet as the switch.

Static: The Dell EMC OpenManage Enterprise - Modular (OME-M) is recommended to configure the switch module through the chassis management GUI. Use the management GUI to configure the switch IP address and perform advanced configuration tasks. By default, the IP address mode is set to DHCP. Use the OME-M to assign a static IP address.

*Click **Get Started** for a guided walk-through of configuring I/O Modules in OME-M.*

The web version of this content contains an interactive activity.

Setting Up iDRAC on Compute Sleds

*Click **Get Started** for a guided walk-through.*

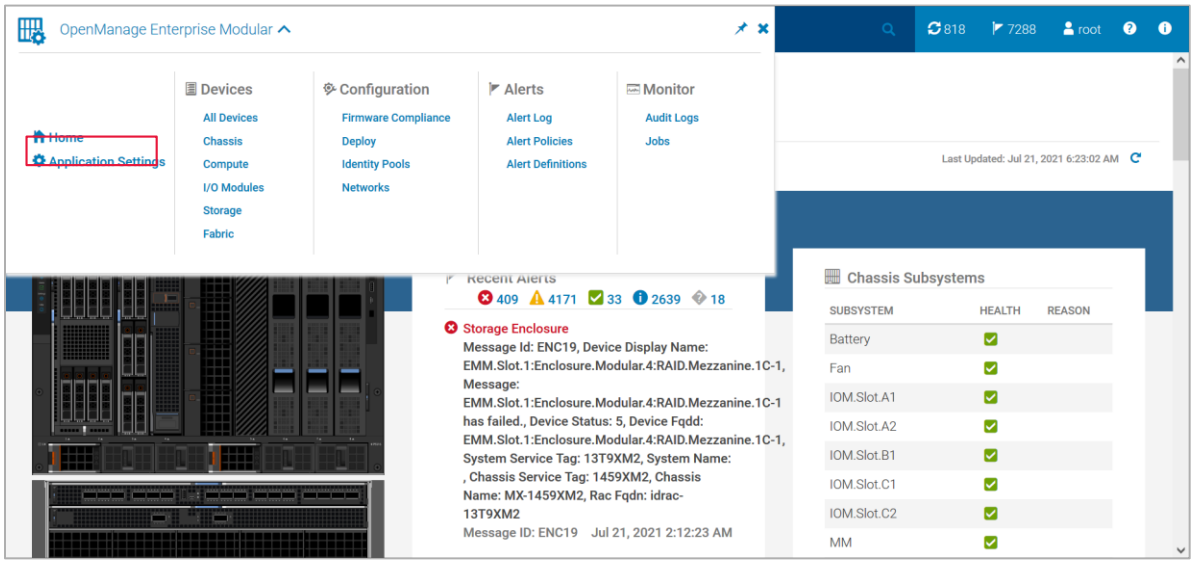
The web version of this content contains an interactive activity.

Adding Users and Setting Privileges in the OME-M

A chassis administrator privilege is mandatory to add users. *Click **each number tab** to learn how to add users and set privileges. Scroll down to view all.*

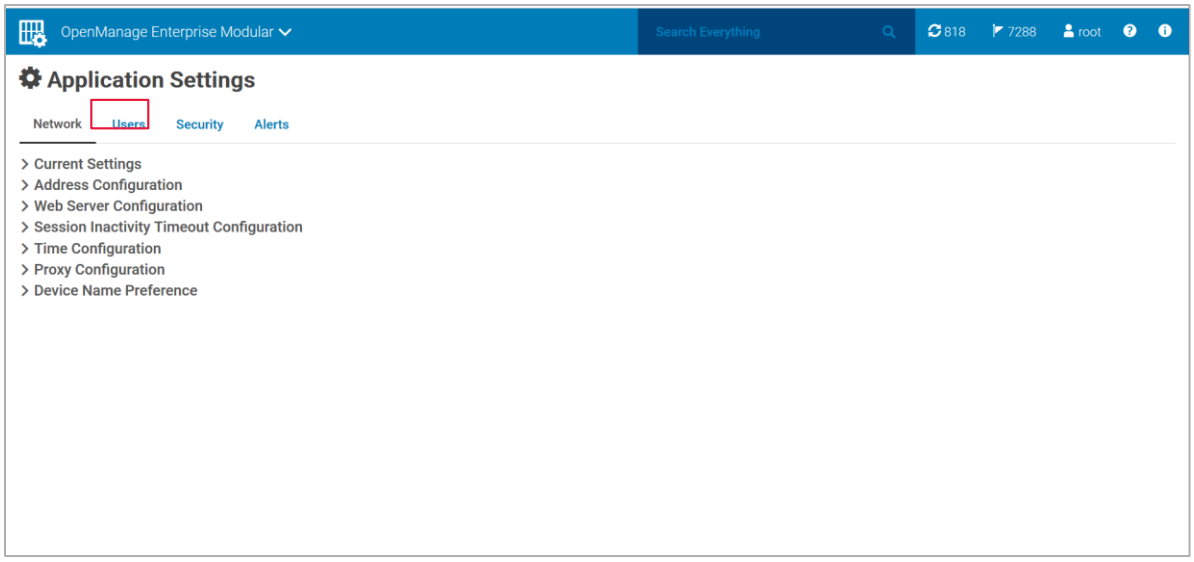
Step 1

Click **Application Settings**.



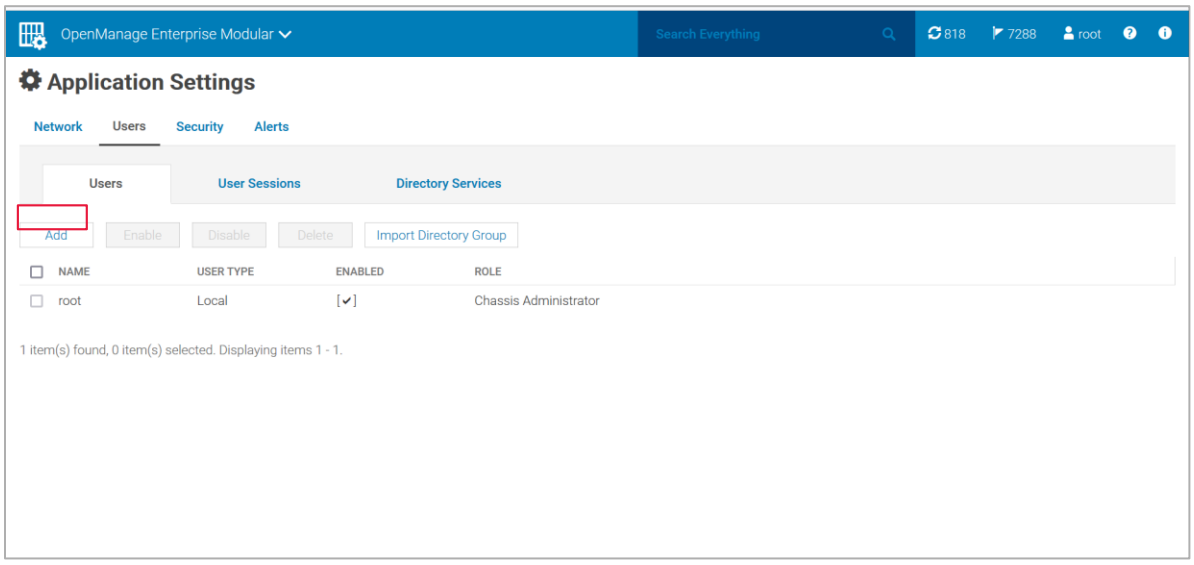
Step 2

Click U**sers**.



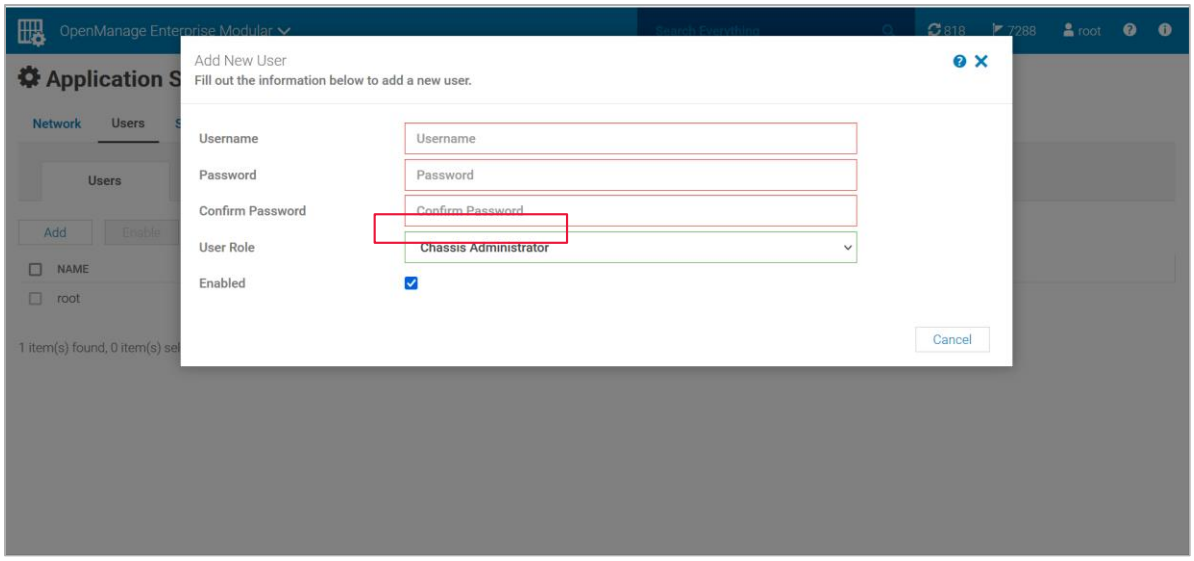
Step 3

Click **Add.**



Step 4

To add users, a **chassis administrator** privilege is mandatory. Click the dropdown arrow of the **User Role** to select. Click here[1] to view the rules of setting Username and Password.



Step 5

The options available in the **User Role** dropdown menu are:

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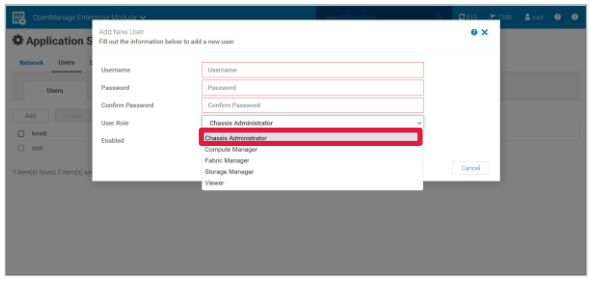
[1] Username: For the OME–Modular serial interface, ensure that the length of the local or remote user name does not exceed 35 characters. Password: The password can be 8 to 32 characters long and contain at least one of the following:● Number● Special character—The supported special characters are - +, &, ?, >, -, }, |, ., !, (, ', ,, _, [, ", @, #,), *, ;, $,], /, %, =,<, :, {, I● Uppercase letter● Lowercase letter

- **Chassis Administrator** - Has all privileges on all devices in the chassis.
- **Compute Manager** - Has view privilege on all devices and manager privileges on compute devices.



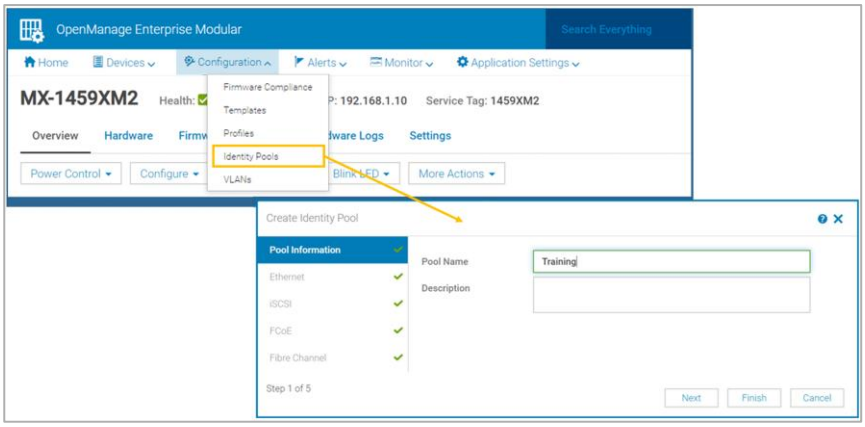
- **Fabric Manager** - Has view privilege on all devices and manager privileges on Network IOM devices.
- **Storage Manager** - Has view privilege on all devices and manager privileges on storage devices.
- **Viewer** - Has view only privilege on all devices.

*Double click **the image** to enlarge.*

Identity Pools

Identity Pools are user created virtualized network identities that are required for accessing systems using Ethernet, iSCSI, FCoE, or Fibre Channel (FC). Identity pools are used in template-based deployment of servers.

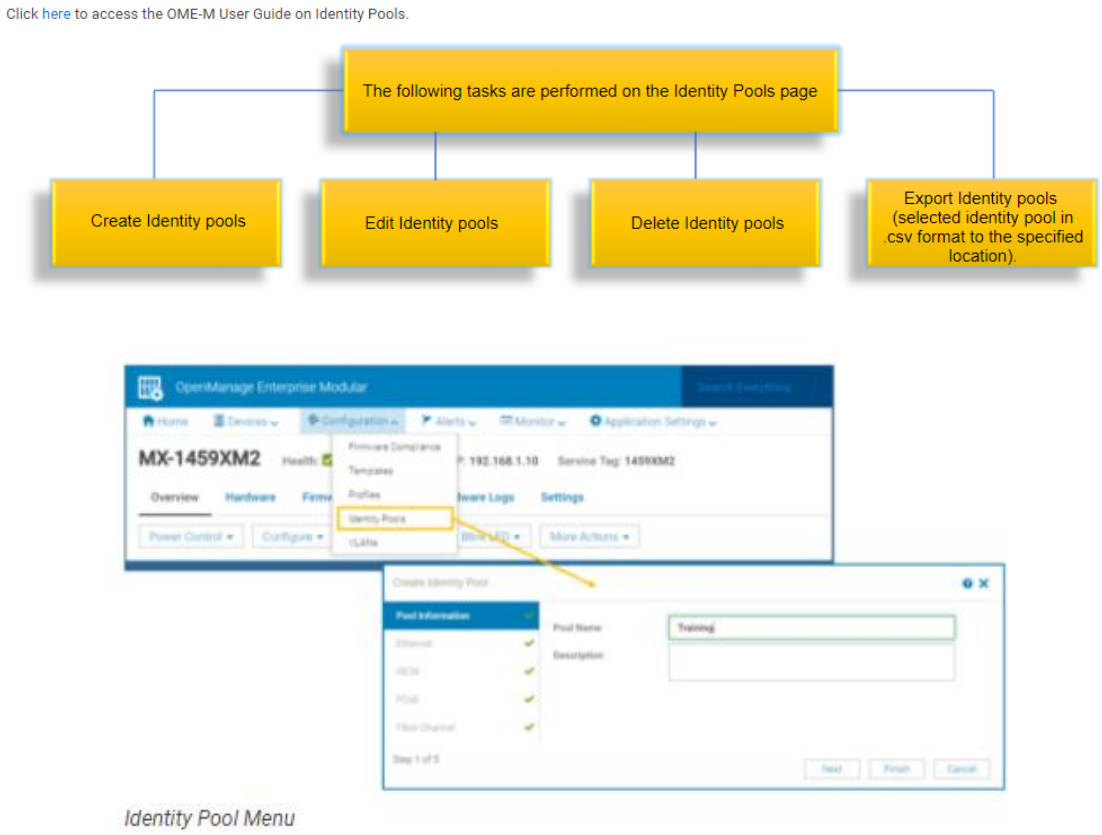
- A Maximum of 5000 Identity Pools in each of the categories can be created.



Identity Pool Menu

- The server deployment process acquires the next available identity from the pool and uses it. The deployment process provides a server from the template description. The migration of the profile from one server to another is performed. The migration is performed without losing access to the network or storage resource in the preferred environment.
- The number of entries in the pool are editable However, it is not possible to reduce the number of entries less than those assigned or reserved. Entries that are not assigned or reserved are deleted.

Click here to access the OME-M User Guide on Identity Pools.



Identity Pool Menu

*Double-click **the image** to enlarge.*

Important: Template management privileges are required to manage Identity Pools.

Create Server Templates

Important: Template management privileges are required to create templates.

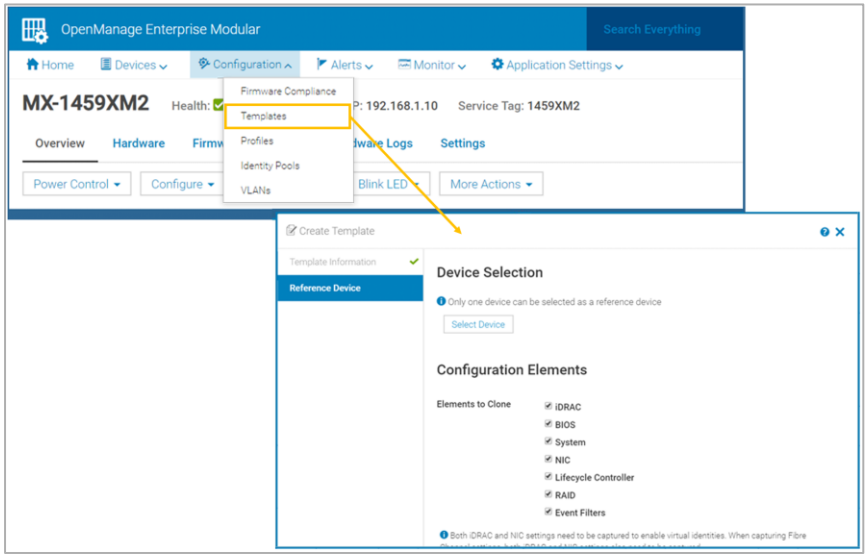
*Click **each tab** to learn more.*

Deploy Templates

Server templates are created and deployed once fabrics are created and deployed to the IOMs. The deployment provides connectivity between servers and fabrics.

To create a template, from OpenManage Enterprise Modular click **Home** > **Configuration** > **Template** > **Create Template** > **Reference Devices** > **Device Selection.**

The deploy feature in OpenManage Enterprise Modular enables you to create server templates and apply them to a compute sled or slot. A server template contains a set of parameters that are extracted from a server and replicated quickly in multiple servers.

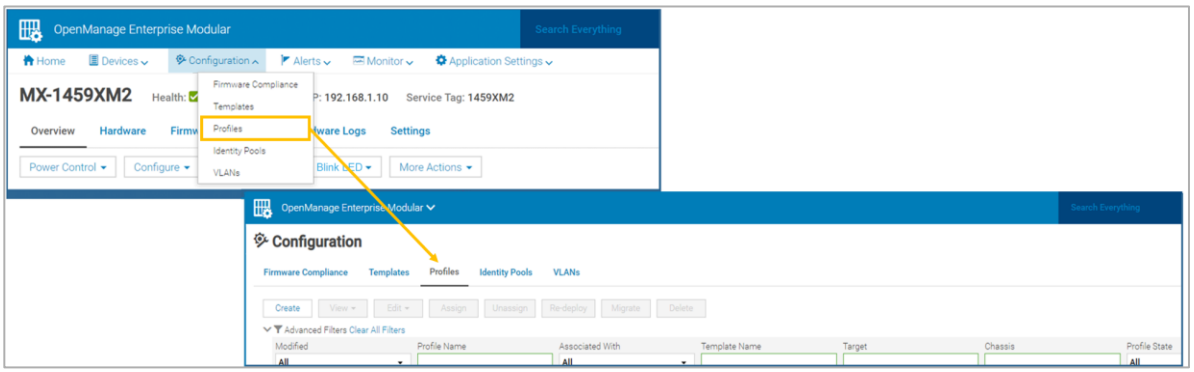


*Double-click **the image** to enlarge.*

Profile Manager Portal

Before OME-M v1.3, the application had the concept of both templates and profiles; however, OME-M users only managed templates. A user would employ the templates page to deploy a template. Using the template information, OME-M internally created a profile and applied it to the selected device. Because OME-M managed the profiles internally, a user had a limited ability to create and manage profiles.

Now, with OME-M v1.3, the user creates, applies, and manages profiles through the Profile Manager portal in the **Configuration** > **Profiles** section of the OME-M.



*Double-click **the image** to enlarge.*

Template Categories

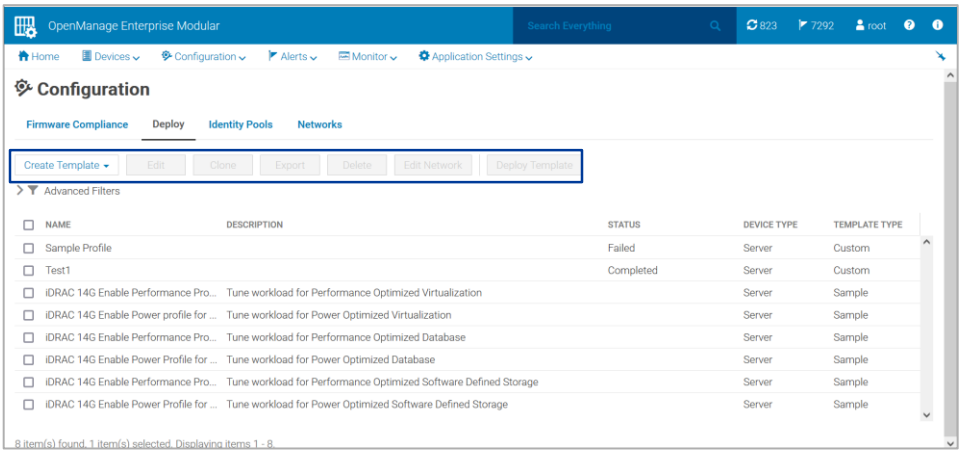
The templates contain settings for the following categories:

- Local access configuration
- Local configuration
- Power configuration
- Chassis network configuration
- Slot configuration
- Setup configuration - The setup configuration covers Quick Deploy, Security Network Services, Customer Network Access, and Multichassis Management.

Template Tasks

The following tasks are performed in the Deploy page:

- Create templates
- Edit templates
- Clone templates
- Export templates



- Delete templates
- Edit network
- Deploy templates
- View template
  - Select the check box corresponding to a template from the list to see **View Details** on the right side. Click **View Details** to view the **Template Details** page.

*Double-click **the image** to enlarge.*

Deploy a Template

*Click **the play icon** to learn how to deploy a template that has an identity pool that is attached to it.*

Movie:

The web version of this content contains a movie.

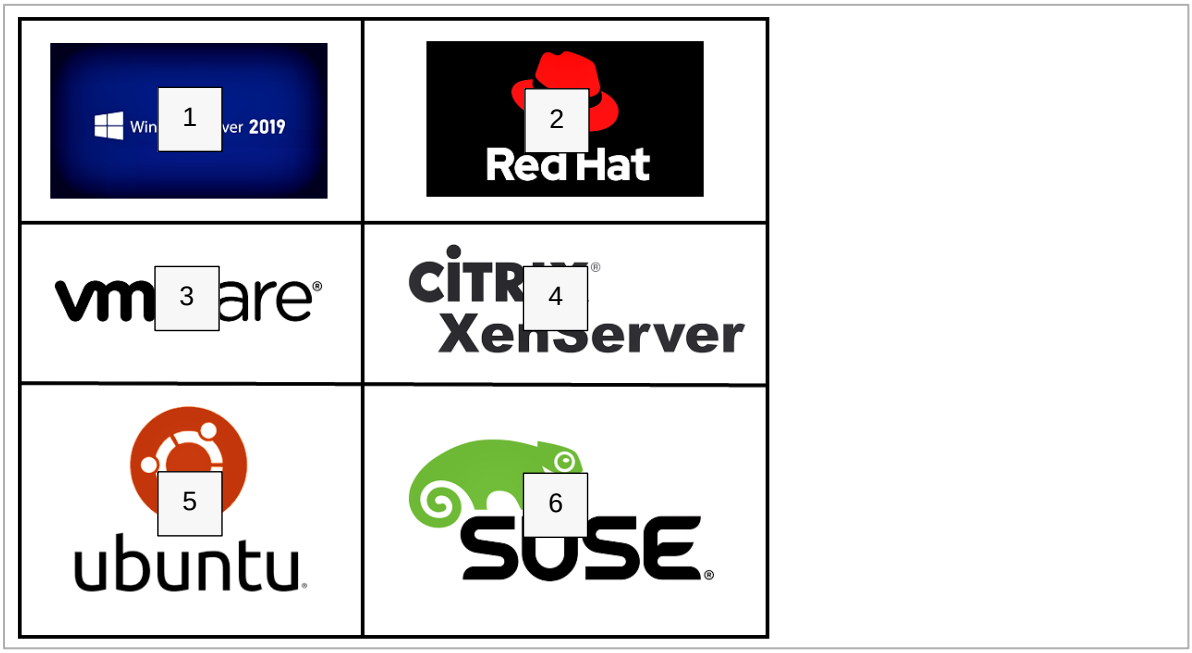
Sled Profile Configuration Exercise

The web version of this content contains an interactive activity.

Supported Operating Systems

Supported Operating Systems

*Click **each Operating System icon** to view the supported versions for the PowerEdge MX7000.*



1:

- Windows Server 2019 Standard Edition with Hyper-V
- Windows Server 2019 Data Center Edition with Hyper-V
- Windows Server 2016 Standard Edition with Hyper-V
- Windows Server 2016 Data Center Edition with Hyper-V

2:

- Red Hat Enterprise Linux 8.3
- Red Hat Enterprise Linux 8.2
- Red Hat Enterprise Linux 7.9

3:

- VMware vSAN 7.0 U1
- VMware vSAN 6.7 U3 with Patch
- VMware ESXi 7.0 U1
- VMware ESXi 6.7 U3 with Patch

4:

- Citrix Xen Hypervisor 8.2 LTSR

5:

- Ubuntu 20.04

6:

- SLES 15 SP2

Important: A note regarding Operating Systems that are not listed under supported Operating Systems for these compute sleds: Dell Technologies may not support an Operating System for various reasons, including discontinued support from the software vendor or lack of availability with certain products.

For more information about an unsupported platform or Operating System, please contact the software vendor.

For an updated version of supported Operating Systems for the MX-Series platform, refer to support.dell.com.

Module Summary

Key points that were covered in this module include:

- MX7000 chassis rack mount and cabling
- Basic ESD procedures
- Steps to deploy the MX-series platform
- Stages of the power on sequence
- iDRAC configuration
- Identity pool and server templates
- Supported operating systems on MX7000

Knowledge Check: Installation

Question 1

1. The LED-Only control panel is composed of five Status LEDs, an LED Status Bar, and a system ID button. If the customer has the LED-Only Control Panel installed and want to know their options to configure the MX platform, which options would they have?
   a. Serial Port/USB, KVM, and QuickSync
   b. Serial Port/USB and KVM
   c. Serial Port/USB only
   d. KVM, QuickSync, and CLI

Question 2

2. True or False: When the Management Module (MM) is updated, the Fabric Resource Director (FReD) microcode on the IOM/Sled is updated simultaneously. After the update, a reboot of the IOM/Sled is required.
   a. True
   b. False

Question 3

3. True or False: When configuring a static IP for I/O Modules, Dell EMC recommends configuring the switch module through OME-M
   a. True
   b. False

Question 4

4. True or False: When connecting to the MX7000 chassis via the KVM, the KVM selector button, similar to other modular chassis units, must be pressed.

a. True

b. False

Question 5

5. Identity Pools virtualize the network identity for which of the following:

a. FCoE, iSCSI, or FC

b. FCoE and iSCSI
c. FCoE
d. iSCSI and/or FC

You Have Completed This Content

Click the **Save Progress and Exit** button in the course menu or below to record this content as complete.
Go to the next learning or assessment, if applicable.

Appendix

KVM supported RACADM commands

Scroll down to view the entire list.

COMMAND	DESCRIPTION
help	Displays a list of RACADM subcommands.
help <subcommand>	Displays the usage summary for a subcommand.
?	Displays a list of RACADM subcommands.
? <subcommand>	Displays the usage summary for a subcommand.
arp	Displays the networking ARP table.
getmodinfo	Displays the module configuration and status information.
chassisaction	Performs a chassis power on/off or power cycle/reset operation.
chassislog	Displays the chassis log messages.
cmcchangeover	Toggles the redundant state of the CMC between active/standby.
connect	Connects the switch or blade serial console.
debug	Enables the debug authorization commands.
deploy	Deploys the blade or IOM with specified properties.
faultlist	Displays the active messages in the chassis subsystem.
getniccfg	Displays the current network settings.

getsensorinfo	Displays the system sensor information.
getsysinfo	Displays the general management module and system information.
getpminfo	Displays the power management status information.
getpbinfo	Displays the power budget status information.
racreset	Performs a management module reset operation.
racresetcfg	Performs a management module factory reset operation.
swinventory	Displays the list of software's installed on the chassis.
serveraction	Perform a server or storage power management operation.
setniccfg	Modify the network configuration properties.
traceroute	Displays the route packets trace to network host.
traceroute6	Displays the IPv6 route packets trace to network host.
ifconfig	Displays the network interface information.
ping	Sends ICMP echo packets on the network.
ping6	Sends IPv4 ICMP echo packets on the network.
getconfig	Displays the management module configuration properties.
config	Modify the management module configuration properties.
chassisgroup	Enables multiple chassis management.

