1 Before you begin

WARNING: Before you set up and operate your Dell EMC storage system, review the safety instructions that came with it.

Unpack storage system equipment

An ME4 Series storage system includes:

- Documentation
- 2U or 5U enclosure
- Power cables (2)
- Separately packaged disk drives (5U enclosure only)
- Fibre Channel or iSCSI SFP+ transceivers or cables (1 per host port)
- Host cables (1 per controller module host port)
- Expansion cables (1 per expansion module)
- Optional enclosure bracket with key (1 per 2U enclosure)
- I/O module blank (2U single-controller storage system only)
- Data drive blank (2U enclosure system is not fully populated)
- One clamping screw (B) per enclosure
- Fastening screws (A)
- Lifting straps (2)
- Mounting rails (2)
- Rackmount kit
- Front panel modules
- Rear panel modules
- Power cords (2)
- Host cables (1 per controller module host port)

Develop a configuration plan

Before installing the storage hardware, develop a configuration plan where you can record host server information, switch information, and network information.

Consider plans for multipath/failover

Redundancy is provided by multipathing, which allows alternate paths if a data path fails. It is recommended to use multipathing, so that volumes are mapped to ports in more than one Fibre Channel or iSCSI fabric.

NOTE: Indicates important information that helps you make better use of your product.

CAUTION: Indicates potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: Indicates a potential for property damage, personal injury, or death.

Notes, cautions, and warnings

2 Mount the enclosures

WARNING: Potential injury: chassis is heavy.

- Use at least two people to mount a 2U chassis. Use a mechanical lift to mount a 5U chassis.
- The rack may fall over if allowed to become top-heavy. Load the rack from the bottom up with the heaviest chassis at the bottom.
- Secure the controller enclosure to the rack using the mounting screws located in the plastic bag.

2U enclosure

1. Remove the rack mounting rail kit from the box and inspect for damage:
   a. Set each location pin at the rear of the rail into a rear rack post hole. Attach the bracket to the rear rack post using the washers and screws supplied. Leave the screws loose.
   b. Extend the rail to fit between the front and rear rack posts, and attach the bracket to the front rack post using the washers and screws supplied.
   c. Tighten the two clamping screws located along the inside of the rear section of the rail bracket.
   d. Repeat the above sequence of steps for the comparison rail.

2. Install the enclosure into the rack:
   a. Keep the enclosure level, carefully insert the chassis slides into the rack rails and push fully in.
   b. Tighten the mounting screws in the rear kit brackets.
   c. Remove the enclosure until it reaches the end and hard stops approximately 400 mm (15.75 inches). Tighten the mounting screws on the front of the rail kit bracket.
   d. Return the enclosure to the fully home position.

5U enclosure

The 5U enclosure is shipped without the disks installed. Before mounting, also remove the rear panel modules to reduce the enclosure weight.

1. With the preassembled rails at their shortest length, locate the rail location pins inside the front of the rack, and extend the length of the rail assembly to position the rear location pins. Ensure the pins are fully inserted in the square or round holes in the rack posts.
2. Fully tighten all clamping screws and middle slide locking screws.
3. Ensure the four rear space clips (not shown) are fitted to the edge of the rack post.
4. Slide the enclosure until it is fully seated on its rails.
5. Fasten the front and rear of the enclosure using the enclosure fastening screws.

CAUTION: Once the enclosure is mounted, dispose of the lifting straps. The straps are not suitable for reuse.

Remove the enclosure until it reaches the end and hard stops approximately 400 mm (15.75 inches). Tighten the mounting screws on the front of the rail kit bracket. Return the enclosure to the fully home position.

2U rack mount

Figure 3 shows the steps for installing a 2U enclosure into a rack:

- Fastening screws (A)
- Rear rack post - square hole
- Rear left ear flange fastening screw (A)
- Clamping screw (B)
- Rear left ear flange fastening screw (A)
- Fastening screw

5U rack mount

Figure 4 shows the steps for installing a 5U enclosure into a rack:

- Fastening screws (A)
- Rear rack post - square hole
- Rear left ear flange fastening screw (A)
- Clamping screw (B)
- Rear rack post - square hole
- Fastening screw

Connect optional expansion enclosures

You can connect a maximum of nine 2U expansion enclosures or three 5U expansion enclosures to a 2U or 5U controller enclosure. A 2U controller enclosure can be connected to a mixture of 2U and 2U04 expansion enclosures, or 9B,84 only. A 5U controller enclosure can only be attached to 5U enclosure enclosures. Each expansion enclosure includes two expansion modules.

Figure 5 shows reverse cabling of a dual-controller 2U enclosure and supported 2U expansion enclosures configured with dual expansion modules. Figure 6 shows reverse cabling of a dual-controller 5U enclosure and supported 5U enclosure enclosures configured with dual expansion modules. Reverse cabling allows any expansion enclosure to fail—or be removed—while maintaining access to other enclosures. The middle SAS ports on expansion modules are not used.

Figure 6 shows reverse cabling of a dual-controller 2U enclosure and supported 2U expansion enclosures configured with dual expansion modules.

3 Connect to the management network

Each controller (a network port must be connected to a management network. The network port provides access to management interfaces and is used to send notifications, SNMP traps, and support data. See figures 7 and 8.

1. Connect an RJ45 Ethernet cable to the network port on each controller.
2. Connect the other end of each Ethernet cable to a network that your management host can access (preferably on the same subnet).

Figure 7 shows reverse cabling of a dual-controller 2U enclosure and supported 2U expansion enclosures configured with dual expansion modules.

Figure 8 shows reverse cabling of a dual-controller 5U enclosure and supported 5U enclosure enclosures configured with dual expansion modules.
4 Cable host servers to the storage system

The storage system can connect to host servers directly or optionally through switches. For information about switch-attach cabling, see the Dell EMC PowerVault ME4 Series Storage System Deployment Guide. For a list of supported HBAs or iSCSI network adapters, see the Dell EMC PowerVault ME4 Series Storage System Support Matrix.

Fibre Channel

Install and connect each HBA to a switch that is connected to the host ports on the two controllers shown in figures 9-12. In hybrid examples, one server and switch manages FC traffic, and another server and switch manages iSCSI traffic. For FC, each initiator must be zoned with a single or multiple host ports only (single initiator/single target or single initiator/multiple target of the same device).

iSCSI

Install and connect each HBA to a switch that is connected to the host ports on the two controllers shown in figures 9-12. For iSCSI, use either dedicated switches for iSCSI traffic, or use VLANs when switches are used for different kinds of IP traffic.

5 Connect power cables and power on the storage system

When powering on, ensure the enclosures are powered on and associated with data hosts, in the following order (see figures 15 and 16):

1. Power on any network switches, routers, or other standalone components.
2. Power on any expansion enclosures. Wait until the expansion enclosures are completely powered up before powering on the controller enclosure.
3. Power on the controller enclosure.
4. Power on the host servers (if powered down for maintenance purposes). Once powered on, the System Power LED on the 2U Ops panel turns green.

6 Configure the storage system

Temporarily set the management host NIC to a 10.0.0.x. address or to the same IPv6 subnet to enable communication with the storage system.

NOTE: HTTPS must be used to access the storage system during deployment.

NOTE: Do not turn on more than one unconfigured controller enclosure at a time to avoid IP conflicts.

SAS

Install and connect each HBA directly to the host ports on the two controllers shown in figures 15 and 14.

CAUTION: Ensure that you assign the correct IP addresses to the HBAs or network adapters on an iSCSI host. Assigning IPs to the wrong ports can cause connectivity issues.

Windows and Linux hosts

Install the HBAs or network adapters and make sure that the latest supported BIOS and drivers are installed.

Attach the hosts to the storage system and install MP10 or DM Multipathing on the hosts before performing the following steps:

NOTE: Configure only one host at a time.

Fibre Channel

1. Write down the FC WWN of each HBA to complete the Host Setup Wizard.
2. From the Storage Manager interface, run the Host Setup Wizard.
3. Configure MP10 or DM Multipathing for the volumes on the host.

iSCSI

1. Assign IP addresses to each iSCSI port to match the subnets for each redundant path.
2. Write down the IQNs for each iSCSI initiator/HBA to complete the Host Setup Wizard.
3. If needed, install and configure the iSCSI software initiator on the host.
4. If using the iSCSI software initiator, it should connect pairs of target/initiator addresses for multipath using the initiator applet CLI.
5. Configure MP10 or DM Multipathing for the volumes on the host.

VMware ESXi Hosts

Install the HBAs or network adapters and make sure that the latest supported BIOS and drivers are installed.

Attach the hosts to the storage system before performing the following steps:

NOTE: Configure only one host at a time.

Fibre Channel

1. Write down the FC WWN of each HBA to complete the Host Setup Wizard.
2. From the Storage Manager interface, run the Host Setup Wizard.

iSCSI

1. If using network adapters, add the VMkernel ports to the iSCSI software initiator.
2. Assign IP addresses for each adapter port to match the subnets for each redundant path.
3. If using network adapters, add the VMkernel ports to the iSCSI software initiator.
4. Write down the IQNs for each iSCSI initiator/HBA to complete the Host Setup Wizard.
5. From the Storage Manager interface, run the Host Setup Wizard.

NOTE: The latest firmware and drivers must be installed on the host.

SAS

1. Write down the SAS WWN of each HBA to complete the Host Setup Wizard.
2. From the Storage Manager interface, run the Host Setup Wizard.