

Dell Storage Center

SC280 Enclosure

Getting Started Guide



Notes, cautions, and warnings

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

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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Before You Begin

Consider the following best practices before setting up your SC280 expansion enclosure.

- Before connecting any cables between the controller and enclosure, physically label each port and connector.
- Always follow proper power-up and power-down procedures when cycling power across the network. Verify that critical network components are on separate power circuits.

NOTE: This product is intended for restricted access locations, such as a dedicated equipment room or equipment closet.

WARNING: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.

Safety Warnings



A fully configured SC280 expansion enclosure weighs up to 131 kg (288 lb). An unpopulated expansion enclosure weighs 46 kg (101 lb). Use appropriate lifting methods when installing the expansion enclosure.



The operating temperature inside the drawers of a expansion enclosure can reach up to 60°C (140°F). Take care when opening drawers and removing disk carriers.



Disconnect all electrical supply connections to the expansion enclosure before proceeding.

Installation and Configuration

⚠ WARNING: Before performing the following procedure, review the safety instructions that came with all Storage Center components.

Topics:

- [Unpacking the System](#)
- [Installation Safety Precautions](#)
- [Installation Overview](#)
- [Connecting the Power Cables](#)
- [Securing the Power Cables](#)
- [Location of Power Switches](#)

Unpacking the System

ⓘ NOTE: Unpacking, installing, and deploying your Storage Center may be done only by a certified service technician.

Before you begin, make sure the site where you intend to set up and use the Storage Center has the following:

- 208 V power from an independent source or a rack power distribution unit with a UPS. (110 V power will not work.)
- Storage Center with the latest firmware, BIOS, and drivers. Contact your supplier for the correct software versions.
- A 5U space in the lower 20U of the rack. If planning to install above the 20U mark, a customer-provided mechanical lift must be made available.

Installation Safety Precautions

Follow these safety precautions to avoid injury and damage to Storage Center equipment:

- Dell recommends that only individuals with rack-mounting experience install a storage system in a rack.
- You need at least two people to lift the storage system chassis from the shipping box and three people to install it in the rack. The empty chassis weighs approximately 46 kg (101 lbs).
- Make sure the storage system is fully grounded at all times to prevent damage from electrostatic discharge.
- When handling the storage system hardware, you should use an electrostatic wrist guard (not included) or a similar form of protection.

The storage system chassis must be mounted in a rack; the following safety requirements must be considered when doing so:

- The rack construction must be capable of supporting the total weight of the installed chassis and the design should incorporate stabilizing features suitable to prevent the rack tipping or being pushed over during installation or in normal use.
- When loading a rack, fill from the bottom up; empty from the top down.
- To avoid danger of the rack toppling over, do not slide more than one chassis out of the rack at a time.
- The system must be operated with low pressure rear exhaust installation.
- The rack design should take into consideration the maximum operating ambient temperature for the unit, which is 35°C.

Installation Overview

The installation process follows the general steps below. For detailed information, refer to vendor documentation supplied with the equipment.

⚠ CAUTION: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer. For more information, see [Technical Specifications](#).

1. Assemble the rails following the safety instructions and the rack installation instructions provided with your system.

2. Follow installation instructions included with the controller.
3. Unpack the enclosure.

NOTE: Two people using lift straps are required to avoid injury.

4. Install the enclosures into the rack.
 - Always load the rack from the bottom up for weight stability.
 - You can allow room for expansion if you have fewer than the maximum number of enclosures.

WARNING: If installing above the lower 20U of a rack, a customer-provided mechanical lift must be used to avoid injury.

Locate the two lock-release buttons situated midway along the runners on each side of the drawer.

Press the lock-release buttons inward and use your body to push the drawer toward the chassis until the locks disengage.

5. Insert each disk drive in carrier (DDIC) into the enclosure one at a time.
 - Protect the drive from static discharge.
 - Handle DDICs by the edges of the frame.

CAUTION: If the enclosure system operates for too long (depending on altitude) with drive drawers open, the enclosure can overheat, causing power failure and data loss. Such use may invalidate the warranty.

6. Close the drawer after adding all DDICs.

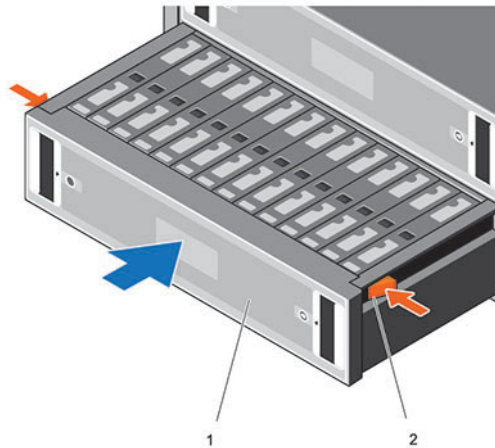


Figure 1. Closing an Enclosure Drawer

1 Drive drawer (2 per chassis)

2 Drawer release (2 per drawer)

- Locate the two lock-release buttons situated midway along the runners on each side of the drawer.
- Press the lock-release buttons inward and use your body to push the drawer toward the chassis until the locks disengage.

Connecting the Power Cables

Ensure that the power switch is in the OFF position before connecting the power cables.

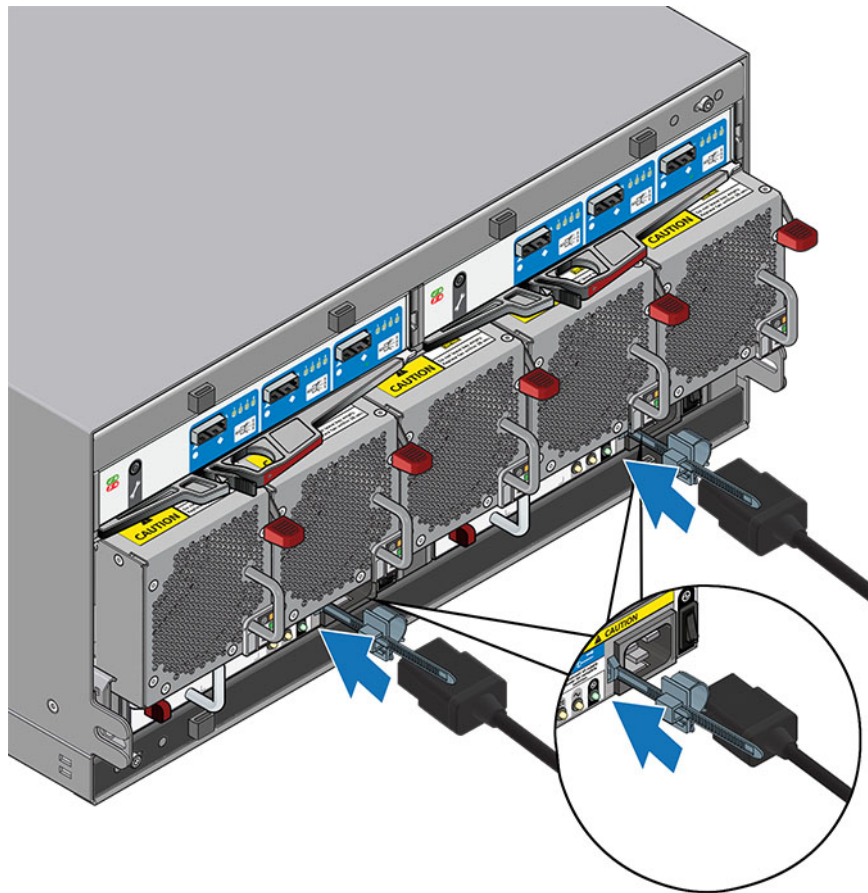


Figure 2. Connecting the power cables

CAUTION: Be careful when closing the rear rack door to ensure that power cords have adequate space as some racks might not be sufficiently deep.

Securing the Power Cables

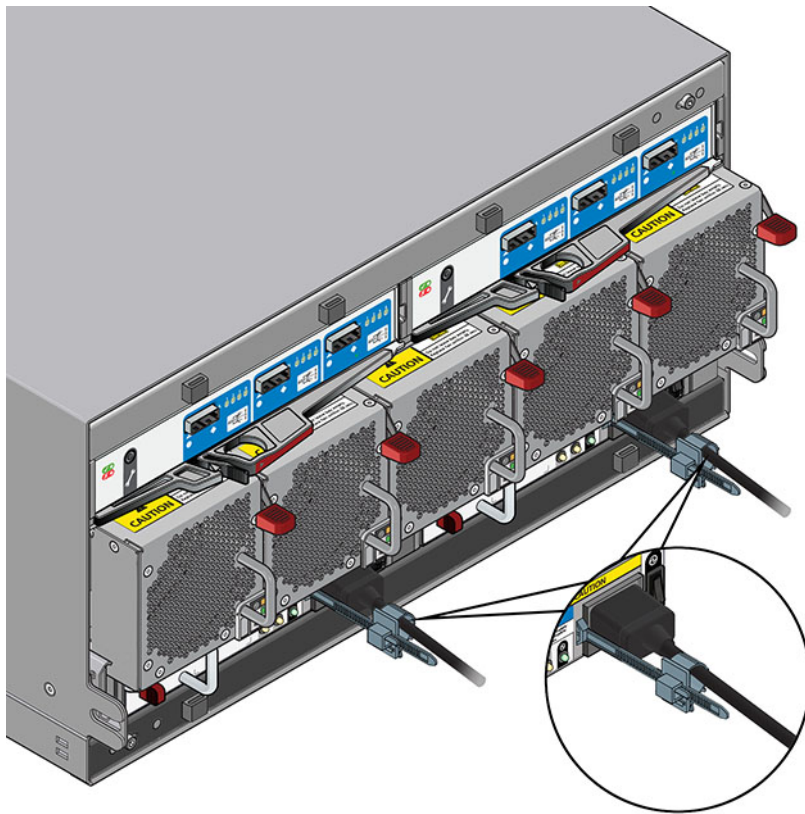


Figure 3. Securing the power cables

1. Secure the power cables firmly to the bracket using the clip provided.
2. Plug the other end of the power cables into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).

Location of Power Switches

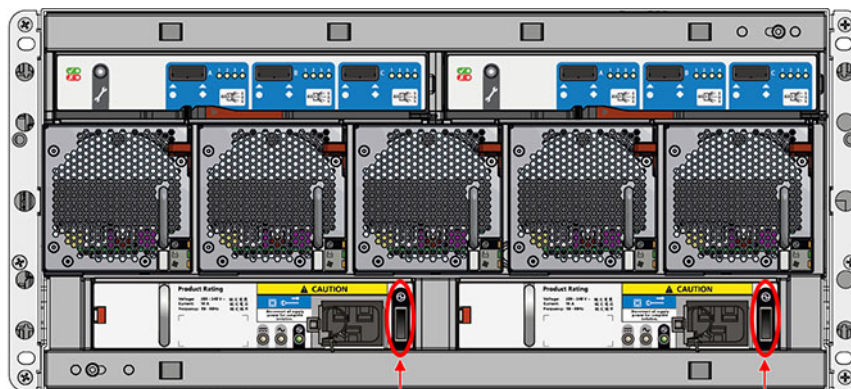


Figure 4. Power switches

NOTE: Do not power up the enclosure until all Storage Center components are racked and cabled.

Other Information You May Need

i **NOTE:** See the safety and regulatory information that shipped with your Storage Center components. Warranty information may be included within this document or as a separate document.

- The rack documentation included with your rack solution describes how to install your system into a rack.
- The Storage Center Deployment Guide provides information about cabling hardware components, configuring a new Storage Center using the System Manager Setup Wizard, and managing a Storage Center in System Administrator.

NOM Information (Mexico Only)

The following information is provided on the device described in this document in compliance with the requirements of the official Mexican standards (NOM):

Importer:	Dell Inc. de México, S.A. de C.V Paseo de la Reforma 2620-11 ° Piso Col. Lomas Atlas 11950 México, D.F.
Model number:	SP-2584, E11J
Supply voltage:	200–240 V CA
Frequency:	50/60 Hz
Current consumption:	16 A

Technical Specifications

Drives

SAS hard drives Up to 84 3.5-inch SAS hot-swappable hard drives (6.0 Gbps)

Storage Bridge Bay (SBB) Modules

SBBs Two hot-swappable EMM IO modules

Connectivity

Configurations Storage Center supports up to 168 drives in each redundant-path enclosure chain

Each SC8000 controller supports up to 6 enclosure chains

i **NOTE: Only up to two SC280s are supported because Storage Center's drive limitation takes precedence over the SC8000's enclosure supportability**

Redundant Array of Independent Disks (RAID)

Controller Dell Compellent SC8000

Management RAID management using Storage Center System Manager version 6.4.1 or later

Back-Plane Board

Connectors

- 84 SAS hard-drive connectors
- Two sets of SBB connectors
- Five cooling fan module connectors
- Two power supply connectors

Back-Panel Connectors (per SBB)

SAS connectors

- Asymmetric SAS Cabling for connection to the controller and for expansion to an additional enclosure
- Support Mini-SAS HD to Mini-SAS cable universally keyed for the following lengths that are currently supported:

Controller to SC280:

- 0.5 m
- 2 m
- 3 m
- 5 m

SC280 to SC280:

- 0.6 m
- 2 m
- 4 m
- 6 m

i **NOTE: SAS connectors are SFF-8086/SFF-8088 compliant**

LED Indicators

Front panel	<ul style="list-style-type: none">• One two-digit LCD indicator for Unit ID, error code, and unit location identifier• One two-color LED indicator for power status• One single-color LED indicator for module fault status (enclosure as a whole)• One single-color LED indicator for logical fault status (drive, HBA, RAID controller, and so on)• One single-color LED indicator for drawer 1 fault status• One single-color LED indicator for drawer 2 fault status
Drawer	<ul style="list-style-type: none">• One single-color LED indicator for sideplane card and power status• One single-color LED indicator for drawer fault status• One single-color LED indicator for logical fault status• One single-color LED indicator for cable fault status• Six single-color LED indicators for data transfer status
Disk Drive In Carrier (DDIC)	One single-color LED for drive fault status
6 Gb SAS IO module	14 one-color LED status indicators, four each for the three SAS ports and two for the module status
Cooling module	<ul style="list-style-type: none">• One single-color LED indicator for module status• One single-color LED indicator for battery fault status (not currently used)• One single-color LED indicator for fan fault status
Power Supply Unit (PSU)	<ul style="list-style-type: none">• One single-color LED indicator for PSU fault status• One single-color LED indicator for AC power fault status• One single-color LED indicator for power status

Power Supplies

AC power supply (per power supply)	
Wattage	2.8 kW
Voltage	200–240 VAC (8.6 A–4.3 A)
Heat dissipation	191-147 W
Maximum inrush current	Under typical line conditions and over the entire system ambient operating range, the inrush current may reach 55 A per power supply for 10 ms or less

Available Hard Drive Power (Per Slot)

Supported hard drive power consumption (continuous)	Up to 1.16 A at +5 V, Up to 1.6 A at +12 V
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IO Card Power (Per Slot)

Maximum power consumed by IO Card	11 W at +12 V
Maximum available power	100 W at +12 V
Maximum available power	1 W at +5 V (standby)

Physical

Height	22.23 cm (8.75 inches)
Width	48.26 cm (19 inches)

Physical

Depth (front mounting bracket to rear surface)	91.5 cm (36 inches)
Depth (front surface to rear surface)	96 cm (38 inches)
Full Weight (maximum configuration)	130.7 kg (287.5 lb)
Shipping Weight (without drives)	

Environmental

i **NOTE:** For additional information about environmental measurements for specific system configurations, see dell.com/environmental_datasheets.

Temperature

Operating	5° to 35°C (41° to 95°F) with a maximum temperature gradation of 10°C per hour i NOTE: Maximum 35°C up to 2134 m (7000 ft), derate to 30°C for 2134 m to 3000 m (7000 ft to 10,000 ft).
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Storage	–40° to 70°C (–40° to 158°F) with a maximum temperature gradation of 20°C per hour
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Relative humidity

Operating	20% to 80% (noncondensing) with a maximum humidity gradation of 10% per hour
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Storage	5% to 100% (noncondensing)
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Maximum vibration

Operating	0.21 g at 5–500 Hz for 15 min
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Storage	1.04 g at 2–200 Hz for 15 min
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Maximum shock

Operating	Half-sine shock 5 g +/- 5% with a pulse duration of 10 ms +/- 10% in operational orientations only
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Storage	<ul style="list-style-type: none">• Z-axis: 30 g 10 ms half sine• X- and Y-axes: 20 g 10 ms half sine
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Altitude

Operating	–30.5 to 3000 m (–100 to 10,000 ft) i NOTE: Maximum 35°C up to 2134 m (7000 ft), derate to 30°C for 2134 m to 3000 m (7000 ft to 10,000 ft).
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Storage	–300 m to 12,192 m (–1000 ft to 40,000 ft)
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Airborne Contaminant Level

Class	G2 or lower as defined by ISA-S71.04-1985
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