

HP MSA System Racking Instructions

This document provides instructions for installing this racking kit and then mounting an HP MSA storage enclosure.

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Audience assumptions

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes that you are qualified in the servicing and installation of computer equipment and are trained in recognizing hazards in products and hazardous energy levels.

Rack planning and resources

HP Modular Smart Array (MSA) Systems are supported for installation in the HP 10000 series of racks. (Other racks might also be suitable, but have not been tested.) For information about setting up the rack, including the appropriate warnings and cautions, see the documentation that came with the rack. Updated rack information can be downloaded from the HP website <http://www.hp.com/products/racks>.

Site requirements

Detailed site requirements are provided at the end of this document and in the user guide. Before installing, verify that the installation site meets the system requirements for:

- Space and airflow
- Temperature
- Power and grounding

Rack kit contents

Item	Quantity
Rear rail brackets	2
Front rail brackets	2
Side brackets	2
Cage nuts	10
Hanger pins*	6
8-32 x 3/16 Phillips flat-head screws	4
6-32 x 1/4 Phillips pan-head screws	3
8-32 x 3/8 Phillips flat-head screws	6
10-32 x 3/4 Phillips truss-head screws	8
10-32 x 5/8 Phillips flat-head screws	2
* Hanger pins may be pre-installed on the front and rear rail brackets.	

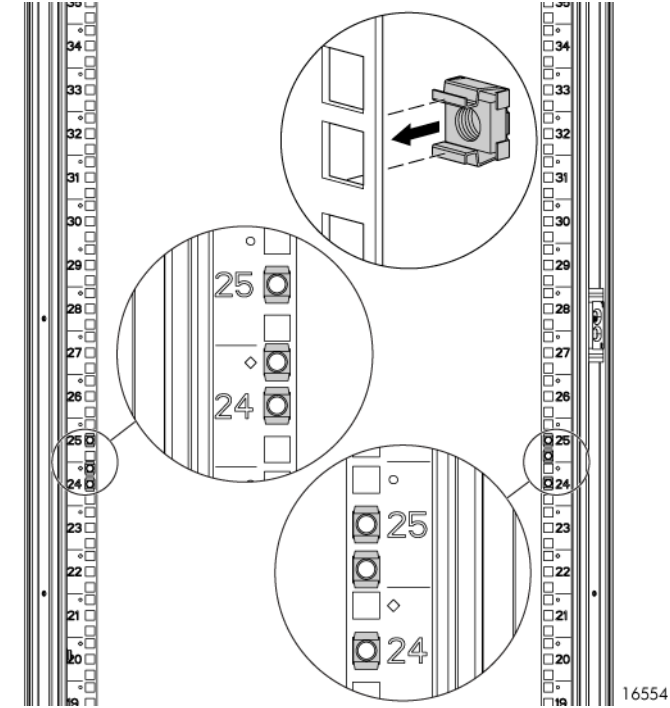
Rack installation

HP recommends installing all storage enclosures at the bottom of a rack. To optimize cabling access, avoid interleaving enclosure and server products.

Step 1: Install cage nuts on the rack

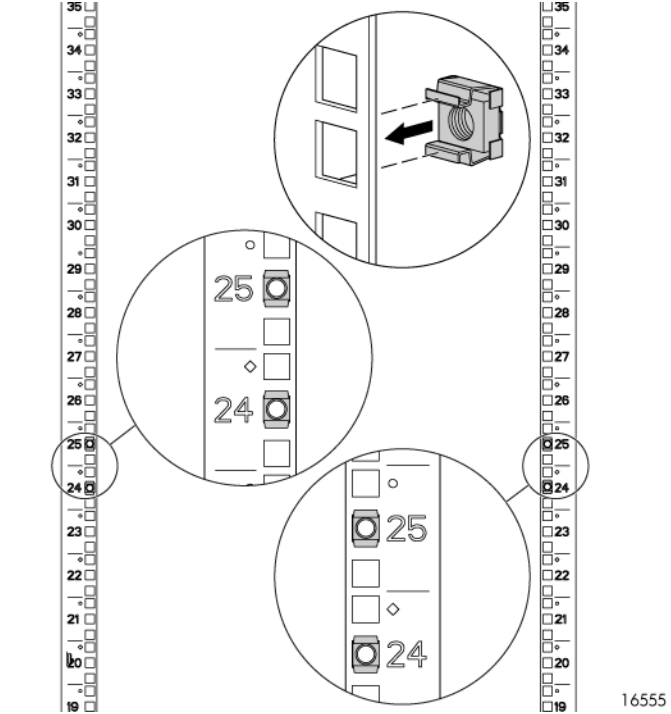
NOTE: Markings shown are provided for illustration purposes only; your device may be installed in a different location.

Front uprights



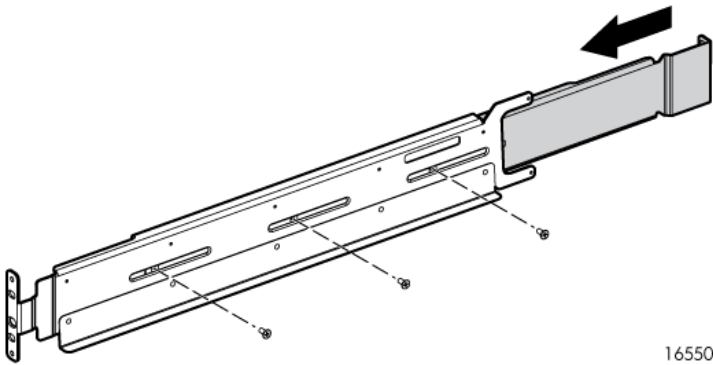
IMPORTANT: Placement of the middle cage nut is different on the right and left side on the front of the rack.

Rear uprights



Step 2: Assemble rails

1. Slide the rear rails into the front rails.
2. Align the first, third, and fifth holes in the rear rail bracket with the slots of the front bracket. Loosely install three 8-32 x 3/8 Phillips flat-head screws in each rail set. They will be tightened after rails are installed.

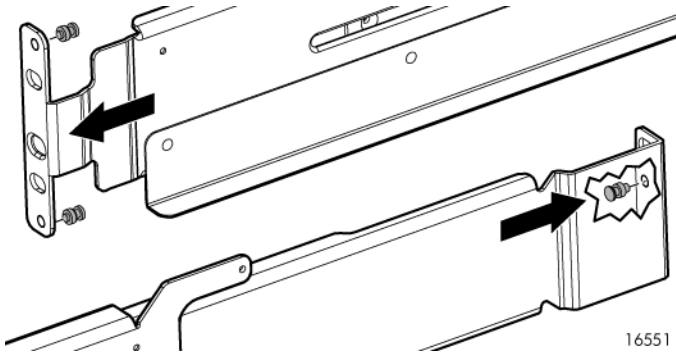


3. Install two hanger pins into the front and one into the rear of each rail set.



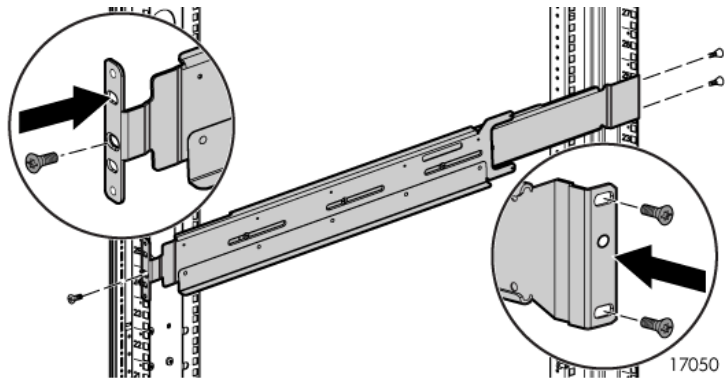
NOTE:

If the hanger pins are pre-installed in the rail sets, move ahead to [Step 3: Install rails on the rack](#).



Step 3: Install rails on the rack

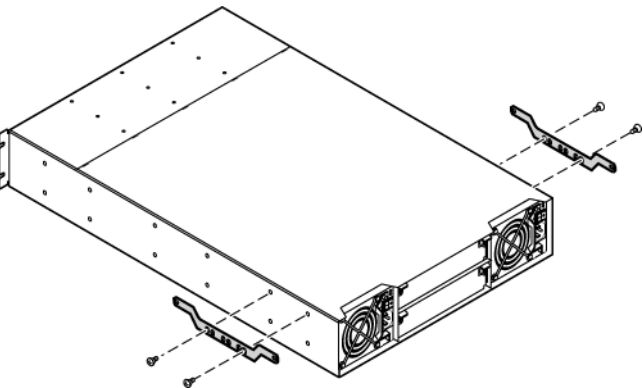
1. Use the hanger pins to hang the rails on the rack. The rails are labeled **Left** and **Right** to indicate their position in the rack when viewed from the front.
- Front — Align the middle screw hole with the middle cage nut.
 - Rear — Align the two screw holes with the cage nuts.



2. Secure the front of each rail to the rack with one 10-32 x 5/8 Phillips flat-head screw (middle hole).
3. Secure the rear of each rail to the rack with two 10-32 x 3/4 Phillips truss-head screws.
4. Tighten the screws holding the front and rear rail brackets together.

Step 4: Prepare enclosure

Attach one side bracket to each side of the enclosure, using four 8-32 x 3/16 Phillips flat-head screws. Position the bracket so that holes in the bracket align with the row of holes near the top of the enclosure chassis.

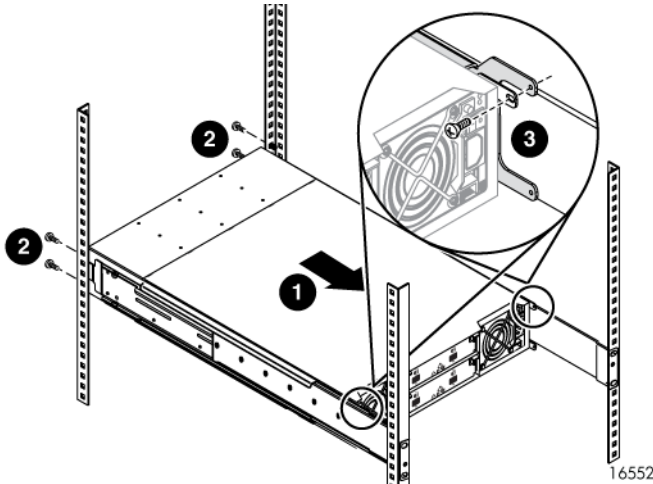


Step 5: Install enclosure in the rack

CAUTION:

Lifting and positioning a disk enclosure requires two people. You can lighten the enclosure by removing hard drives and rear components. If you remove components, observe proper ESD precautions.

1. Slide the enclosure all the way into the rack on the rail ledges (1).



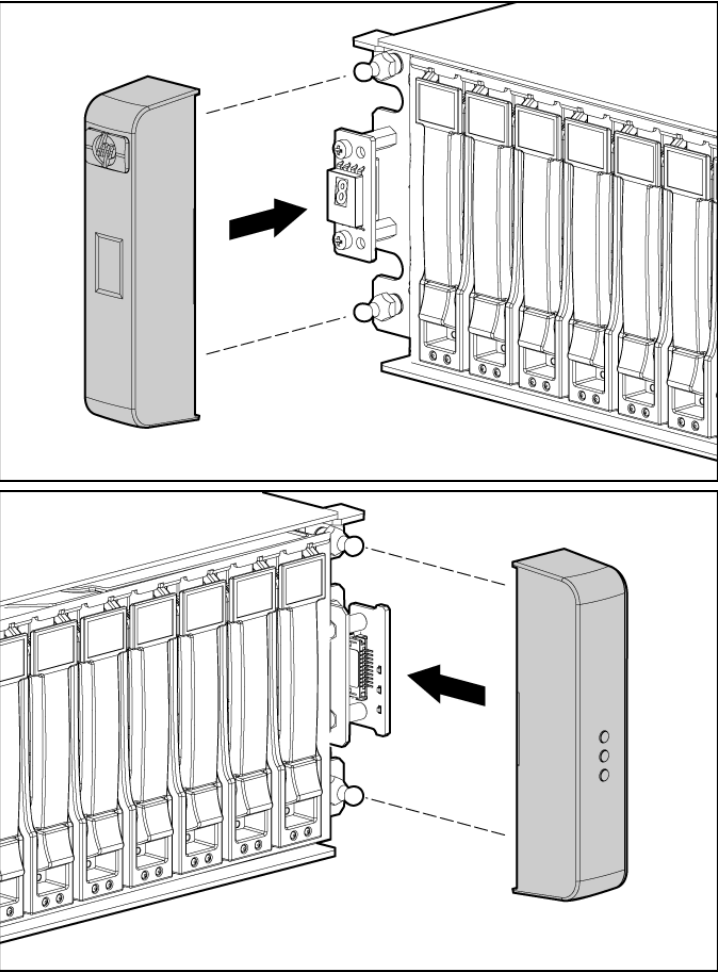
2. Attach the front of the enclosure to the rack with four 10-32 x 3/4 Phillips truss-head screws (2).
3. From the rear of the rack, attach the enclosure side brackets to the rails (3) using two 6-32 x 1/4 Phillips pan-head screws.



NOTE:

Screw access can be improved by rotating the power supply latch downward, especially on the right side. Be sure to re-latch the power supply when done.

Step 6: Install enclosure ears



The enclosure is now ready for cabling and configuration. See the storage enclosure user guide for further instructions.

Detailed site requirements

When installing the enclosure in a rack, select a location that meets the environmental standards described in this section.

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements:

- Leave minimum clearance of 63.5 cm (25 in) in front of the rack.
- Leave minimum clearance of 76.2 cm (30 in) behind the rack.
- Leave minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

HP enclosures draw in cool air through the front and expel warm air through the rear. The front and rear rack doors must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

CAUTION:

To prevent improper cooling and damage to the equipment:

- Do not block the ventilation openings.
- Always use blanking panels to fill empty spaces in the rack.

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the enclosure in a well-ventilated, climate-controlled environment.

The maximum recommended ambient operating temperature (TMRA) for most enclosure products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

CAUTION:

To reduce the risk of damage to the equipment when installing third-party options:

- Do not permit optional equipment to impede airflow around the enclosure or to increase the internal rack temperature beyond the maximum allowable limits.
- Do not exceed the manufacturer's recommended ambient operating temperature (TMRA).

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of IT equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, see the product rating label or the user documentation supplied with that option.

WARNING!

To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

CAUTION:

Protect the enclosure from power fluctuations and temporary interruptions with a regulating UPS. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the enclosure in operation during a power failure.

When installing more than one enclosure, you may need to use additional power distribution devices to safely provide power to all devices. Observe the following guidelines:

- Balance the enclosure power load between available AC supply branch circuits.
- Do not allow the overall system AC current load to exceed 80 percent of the branch circuit AC current rating.
- Do not use common power outlet strips for this equipment.
- Provide a separate electrical circuit for each power supply in the enclosure.

Electrical grounding requirements

The enclosure must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes. In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code. In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

Because of the high ground-leakage currents associated with multiple enclosures connected to the same power source, HP recommends the use of a power distribution unit (PDU) that is either permanently wired to the building’s branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the enclosure is not recommended.

Rack warnings

WARNING!

- To reduce the risk of personal injury or damage to the equipment, be sure that:
- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

WARNING!

- To reduce the risk of personal injury or equipment damage when unloading a rack:
- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and may become unstable when being moved on its casters.
 - Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

Getting help

For more information, see:

- HP MSA user guides
- HP website: <http://www.hp.com>
- HP authorized reseller (locations and telephone numbers of these resellers are given on the HP website)
- HP technical support telephone numbers:
 - In North America, 1-800-633-3600
 - For other regions, telephone numbers are given on the HP website

Additional websites

P2000 G3 MSA Systems: <http://www.hp.com/go/p2000>

Storage: <http://www.hp.com/storage>

Servers: <http://www.hp.com/go/servers>

Storage networking: <http://www.hp.com/go/san>