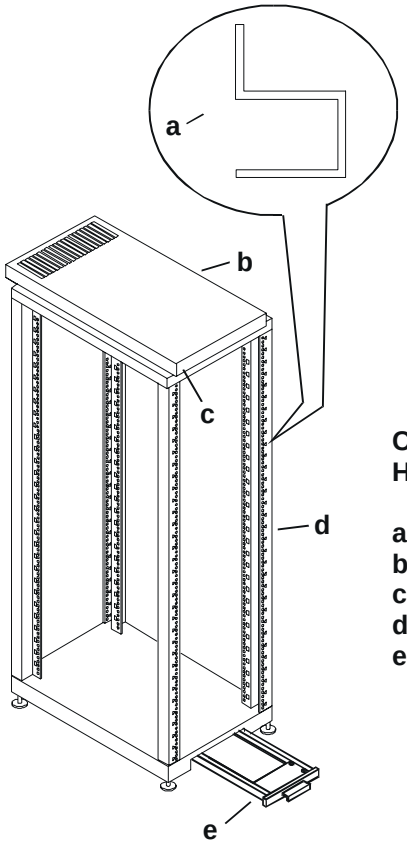
13 Alternative Rack Mounting (4-Post)

Version 2, April 2001

Introduction

This chapter provides the instructions for mounting the HP Netserver in a four-post (column) HP Systems rack. Figure 13-1 shows the Systems rack. If you have the newer 4-post HP System/E or System/U racks, go to Chapter 8. If you are mounting the Netserver in a 2-post non-HP rack, refer to Chapter 7, or see the documentation in the appropriate rack accessory kit.



Characteristics of HP System Rack:

a. 3-Cornered Columns
b. Fan-Only Vent
c. "HP Systems" Name Plate
d. EIA Units Marked by Triangles
e. Anti-Tip Foot Extends Out Front Only

Figure 13-1. HP System Rack

Before mounting the Netserver, determine the Netserver's location in the rack relative to other rack components. Proper placement is vital both for safety and operating efficiency. For more information, refer to "Rack Configuration Tools" later in this chapter.

NOTE	If the HP Netserver is completely configured by the vendor before delivery to the customer, then mounting the HP Netserver in the rack may be the final step in the installation procedure. If the vendor configures the HP Netserver at the customer's site, installation of the network operating system and other software may occur after the HP Netserver is mounted in the rack.

CAUTION	If other rack components are to be mounted in the rack below the HP Netserver, install those components before starting to mount the Netserver.

Tools Required

This rack mounting kit is provided as a tool-less assembly, but does need a nut drive or wrench to release the spring mechanism after shipping.

- Nut driver (10-mm) or wrench (removing spring assembly)
- Phillips screwdriver (removing spring assembly)
- Masking tape or marking pen

Rack Configuration Tools

The HP rack configuration tools, including white papers, are available on worldwide web at HP's web site. Enter the following URL in your browser:

`http://www.hp.com/netserver`

At the Web site, search for "configuration tools" and "high density rack solutions," specifically Rack Assistant, Rack Configuration, Order Assistant, and *HP Netserver High Density Rack Solutions Overview (LP 1000r and LP 2000r)*.

You can read about the tools or download copies for installation. These tools can be used to plan a rack configuration for the components in your system.

The white papers, specifically *HP Netserver High Density Rack Solutions Overview (LP 1000r and LP 2000r)*, provide rack information for HP Netservers

in the high-density racks and additional information for rack systems not listed in this manual. You will need this information to complete a rack system installation.

Safety Precautions

Always keep the following safety and environmental issues in mind, especially if you install the HP Netserver in a non-HP rack environment:

- **Optimum Operating Environment** – The optimum operating conditions for the HP Netserver is in an environmental controlled computer room with a temperature range of 20 to 22° C (68 to 72° F) at 40 to 60% relative humidity.
- **Maximum Ambient Temperature** – Ensure the maximum ambient temperature does not exceed 35° C (95° F).
- **Elevated Operating Ambient Temperature** – The ambient operating temperature within a closed or multi-unit rack assembly may exceed the room's ambient temperature. Ensure the temperature within the rack itself does not exceed 35° C (95° F).
- **Reduced Air Flow** – As you mount equipment in the rack, ensure you allow enough air flow for safe operation of the equipment. The Netserver's fans will only operate correctly if both front and rear doors of the rack allow free air flow (perforated openings), or are removed.
- **Mechanical Loading** – Uneven mechanical loading within the rack can cause hazardous conditions. To prevent uneven loading plan to place the heaviest components in the bottom of the rack, mounting all components as low in the rack as possible.
- **Circuit Overloading** – Ensure the total configuration of equipment in the rack does not overload the supply circuit. To this end, check the nameplate ratings on all equipment. Consider the effect of circuit overloading on overcurrent protection and supply wiring.
- **Reliable Earth Grounding** – Maintain reliable grounding of rack-mounted equipment. Give particular attention to supply connections not directly connected to the branch circuit (such as, using non-HP power strips).

Preparing the Rack

The outer-rail assemblies have spring assemblies that must be removed after shipment and the columns must be marked before mounting the outer-rail assemblies. Once the outer-rails are correctly mounted, then the HP Netserver LP 1000r can be installed into the rack. A template is not provided because the Netserver is exactly one EIA unit high and can only fit into one EIA unit, but not across two EIA units.

NOTE The HP Netserver weighs 32 lbs. (14.5 kg.) fully loaded. It is not necessary to use two people when placing the Netserver into the rack, but it may be helpful.

HP Netserver Rack Mount Parts List

Ensure the rack-mounting kit provided with the HP Netserver contains the following parts:

Table 13-1. Parts for Rack Mount Kit

Quantity	Description
2	Outer-rail assembly

Removing Spring Assemblies

The outer-rail assemblies are shipped with spring assemblies used on the newer HP System/E or System/U racks, but not used on the older HP System racks. The spring assemblies (coiled wire and flat spring) must be removed, before mounting the outer rails. The coiled spring assemblies on the outer-rails are compressed for shipping and held in place with two 10-mm nuts. These nuts must be removed along with the coiled spring to remove the rear spring assemblies, but two of the nuts must be kept to secure the rails to the rear columns of the rack. See Figure 13-2.

1. Turn both nuts on each rail counterclockwise (CCW) to release the rear spring assembly and remove the nuts. See Figure 13-2.

   Keep one nut from each outer rail to attach the rear of the outer rail to the rear column.

2. Remove the coiled wire spring at both ends (outer rail and sliding mechanism). See Figure 13-2.

   The coiled wire spring must be removed to separate the sliding mechanism from the outer rail.

3. Pull the sliding mechanism away from the outer rail.
4. At the front of the outer rail, remove the screw holding the two flat springs to the outer rail.
5. Lift both flat springs and the double washer away from the outer rail.
6. Repeat Steps 1-5 for the other outer rail.

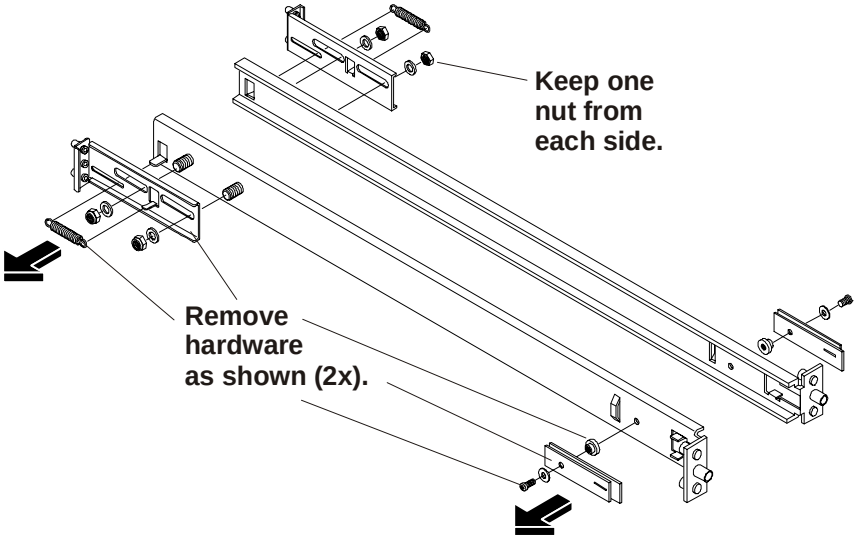


Figure 13-2. Removing Spring Assembly Hardware

Marking the Columns

Use this section to mark the front and rear columns of the HP Systems rack. The outer-rails mount to the face of the front columns and the inside face of the rear columns. The masking tape (or marking pen) is used to identify and mark the locations on the columns.

CAUTION	If other rack components are to be mounted in the rack below the HP Netserver, install those components before starting to mount the Netserver.

NOTE Use the *HP Rack Configuration Tools* to determine where in the rack to mount the HP Netserver.

1. Find the EIA unit markings on the rack and the location for the Netserver.

   The screw holes cover a span of only one EIA unit, which is the height requirement of the HP Netserver.

NOTE The Netserver can only be mounted into both holes of one EIA Unit, but cannot be mounted across two EIA units. You cannot use a hole in one EIA unit and a hole in another EIA unit.

2. Use the masking tape (or marking pen) to mark above the 3rd hole up on both front columns, as shown in Figure 13-3.

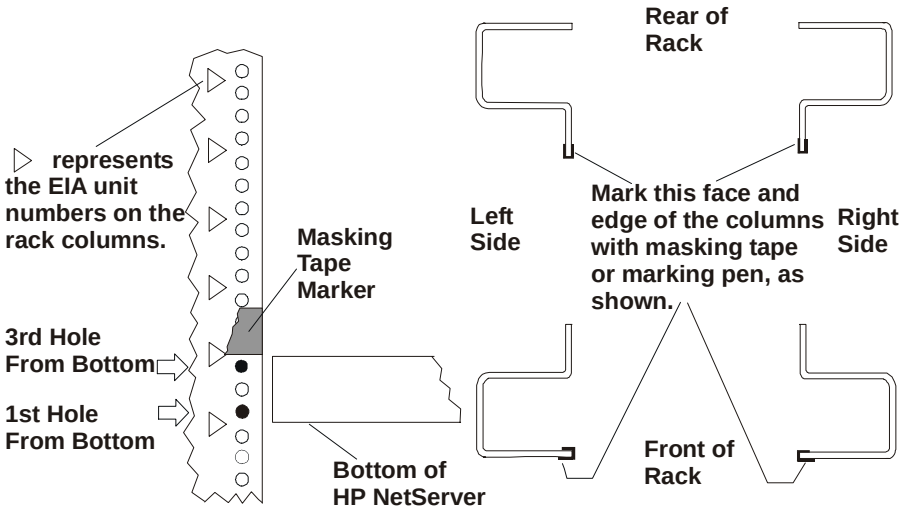


Figure 13-3. Location Marks on the Rack's Columns

3. Mark the forward face and edge of the left-rear and right-rear rack columns, with masking tape, as shown in Figure 13-3.

Attaching Outer-Rails to the Rack

1. Pull the anti-tip foot forward out of the bottom of the rack.

   See Figure 13-4 for the anti-tip foot location.

2. Lower the leveler screws on the rack's lower four corners to make firm contact with the floor. See Figure 13-4.
3. Align the left outer-rail assembly to the left front and rear columns as shown in Figure 13-4.
4. Insert the front outer-rail pins into the column holes (1st & 3rd) just below the marking tape on the front column. See Figure 13-3.

   The front mounting pins of the outer-rail should go into the front face of the front column.

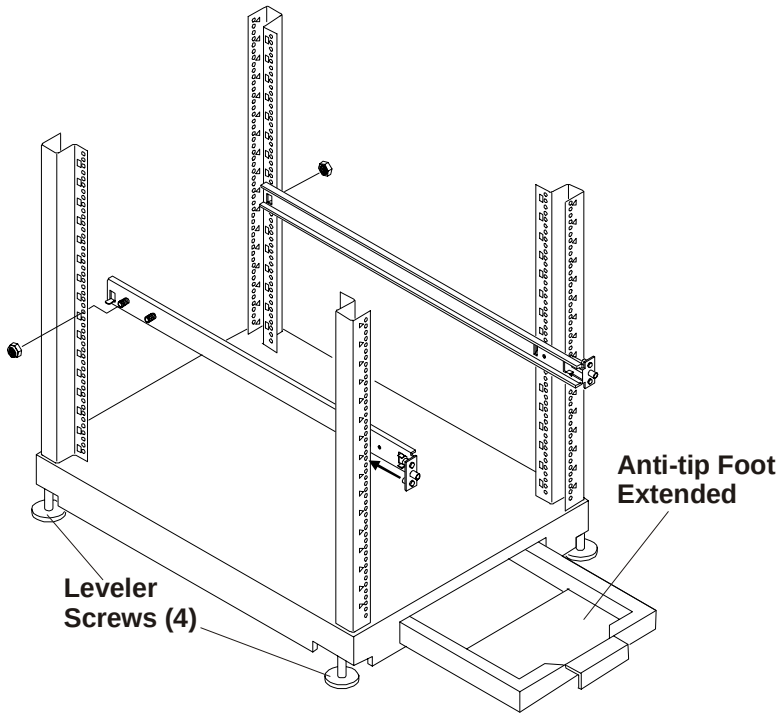


Figure 13-4. Mounting Outer-Rails to Columns

5. Insert the last screw stud on the outer rail into the center hole of the three holes in the EIA unit just below the marking tape on the rear column. See Figure 13-4.
6. Repeat Steps 3 through 5 for the outer-rail assembly on the right front and rear columns.

Placing the HP Netserver in the Rack

Use this topic to insert the HP Netserver into the outer-rail assembly mounted in the rack. Once the Netserver is in the rack, you can connect the cables to the rear of the Netserver.

WARNING To prevent rack instability while mounting the HP Netserver, ensure the rack's anti-tip foot is pulled forward out of the bottom of the rack. Failure to do so could result in injury and equipment damage.
To prevent the rack from rolling while you mount the HP Netserver, ensure the leveler screws on the rack's lower four corners are in firm contact with the floor. See Figure 13-4.

1. Lower the leveler screws on the rack's lower four corners to make firm contact with the floor. See Figure 13-4.
2. Ensure you have extended the anti-tip foot from the rack before continuing this procedure. See Figure 13-4.

NOTE The HP Netserver weighs 32 lbs. (14.5 kg.) fully loaded. It is not necessary to use two people when placing the Netserver into the rack, but it may be helpful.

3. Lift the HP Netserver by its inner-rails off the floor or pallet.
4. Move the rear of the inner-rails mounted on the Netserver just beyond the inside edge of the outer-rail assemblies. See Figure 13-5.

   The mounting inner-rails should sit just inside the outer-rails with nothing preventing the Netserver from moving into the outer-rails.

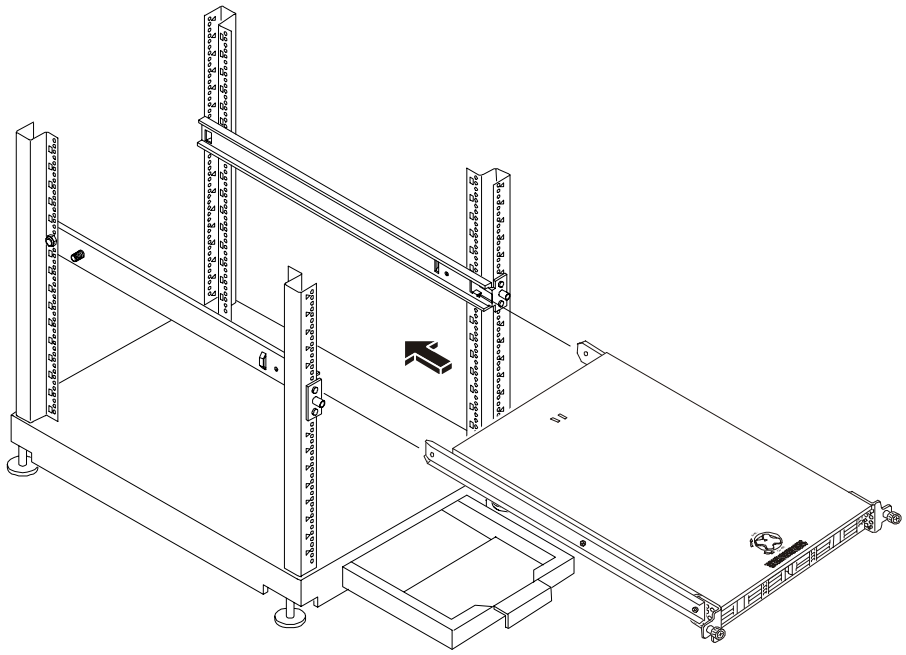


Figure 13-5. Mounting the HP Netserver

5. Slowly move the Netserver chassis into the outer-rail assemblies until the Netserver is completely in the rack. See Figure 13-5.

   The securing brackets on the front of the Netserver should stop the chassis from going all the way into the rack.

6. Secure the Netserver chassis to the rack with captive screws.

Attaching the Front Bezel

The front bezel attaches to the HP Netserver by pivoting on two pins at the bottom and grasping the top pins with spring latches. The middle pins force the bezel to pivot in or out, ensuring a rotating action.

1. Position the Bezel in front of the HP Netserver LP 1000r as shown in Figure 13-6.
2. Push in on the bottom to engage the pins, allowing it to rotate up.
3. Push the bezel in at the top to engage the spring latches.

   The spring latches should click when engaged.

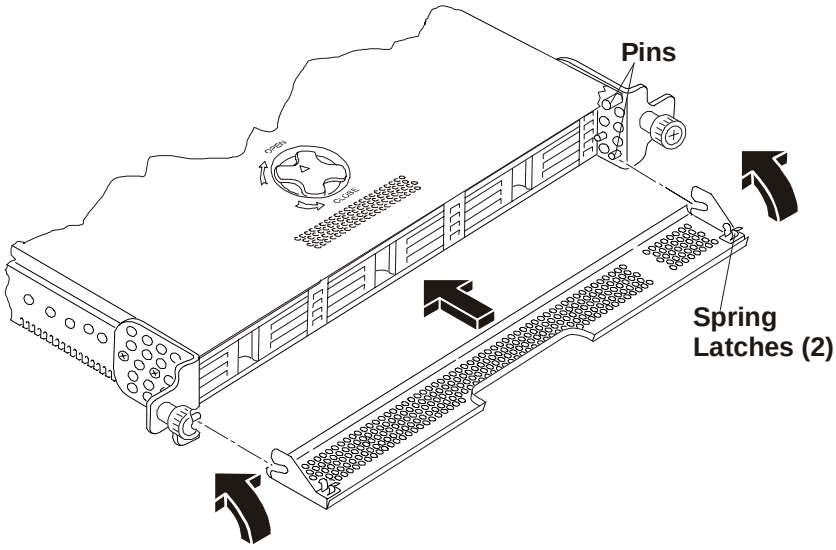


Figure 13-6. Attaching the Bezel to the Netserver

Continuing with the Rack Installation Process

After you install the HP Netserver in the rack, refer to the white paper, located on the HP web site for high-density rack configurations, to continue the process of installing and configuring the rack system. The white paper is titled *HP Netserver High Density Rack Solutions Overview (LP 1000r and LP 2000r).*