

HP Cluster Platform AC089A Cable Management Bracket Installation Guide

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1 Preparing for Installation

1.1 Audience

This guide is intended for HP service representatives and other persons trained to install hardware options in the HP Rack 10000 Series cabinet. Note that such persons are expected to understand the hazards of working in this environment and to take suitable precautions to minimize danger to themselves and others.

This bracket is used to support cables in either an inward or outward orientation on the following servers:

- DL380 G4 and DL585 G2 (Quadrics, Voltaire, and Cisco only)
- DL380 G5 riser cage B PCI-e (optional) in slot 3 (Quadrics, Voltaire, and Cisco only)
- DL385 G2 riser cage B PCI-e (optional) in slot 3 (Quadrics, Voltaire, and Cisco only)
- RX2660 riser cage B PCI-X (3 PCI-X slots) in slot 3 (Quadrics, Voltaire, and Cisco only)

1.2 Documentation Resources

You can download the documentation for components referenced in this installation guide from the following locations:

- HP Rack 10000 Series Support & Documents:
<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/10000series/documentation.html>
- HP Cluster Platform:
http://hp.com/techservers/clusters/xc_clusters.html
- High Performance Computing Documentation:
<http://www.docs.hp.com/en/highperfcomp.html>

1.3 Revision History

This document supersedes the *HP Cluster Platform ProLiant DL380 G4 Cable Management Bracket Installation Guide* (part number AA-RWNCA-TE) published in December 2004.

1.4 Kit Description

The AC089A cable management bracket described in this document is designed to align and support cables that lead from a cluster's system interconnect to the PCI interface card installed in each server (node). This bracket provides strain relief for the PCI port and ensures a good connection. It also ensures the correct bend radius for the cable and provides attachment points for cable routing and cable management. A kit is required for every server that contains a PCI interface card for the system interconnect.



Note:

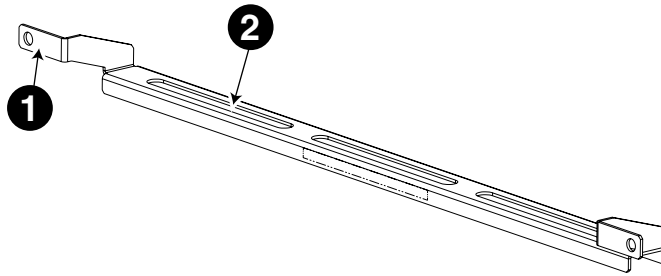
This bracket is designed to support different types of cables, from a 5/16-inch (7.9-mm) minimum diameter to a 5/8-inch (15.9-mm) maximum diameter. Consult the documentation supplied with your cluster before installing the brackets and routing the cables.

1.5 Kit Contents

The AC089A cable management bracket kit contains the following components:

- The bracket shown in Figure 1-1.

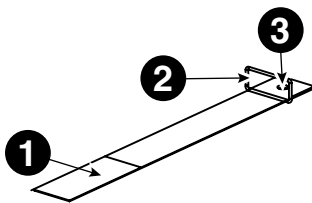
Figure 1-1 AC089A Cable Management Bracket



The bracket is adaptable for use with several models of HP Cluster Platform and might also be applicable in other cable management applications (consult your hardware installation documentation). The following bracket features are called out in Figure 1-1:

1. Mounting holes, which you use to attach the bracket to the rack.
 2. The mounting face, which contains three mounting slots. You attach cable management straps to this part of the bracket.
- One 3.5-inch (89-mm) fabric strap (Figure 1-2) that mounts on the bracket.

Figure 1-2 Fabric Strap



The strap has a hook-and-loop fabric closure (callout 1) and a metal D-ring (callout 2) that is designed to secure a single interconnect cable. The strap is secured to the bracket through a metal grommet (callout 3).

- The fasteners that are specified in Table 1-1.

Table 1-1 Fasteners

Qty.	Size	Format	Torque	Description
2	10-32 x .375-inch	Phillips (Posidrive)	30 in/lb	Machine screw, pan-head. For use the 10-32 cage nuts.
1	M6 x 16 mm	Phillips (Posidrive)	30 in/lb	Machine screw, pan-head. For use with the cage nut to attach the strap to the bracket.
1	M6	Square nut	N/A	Cage nut for M6 x 16-mm screw.
2	10-32	Square nut	N/A	Cage nut for 10-32 x .375-inch screw.

- Packaging and documentation.

To prevent screws from becoming loose because of vibration, HP recommends that you use a torque screwdriver set to the torque specifications given in Table 1-1. Contact your HP sales representative if any parts are missing.

1.6 Required Resources

To install the kit, you need the following resources:

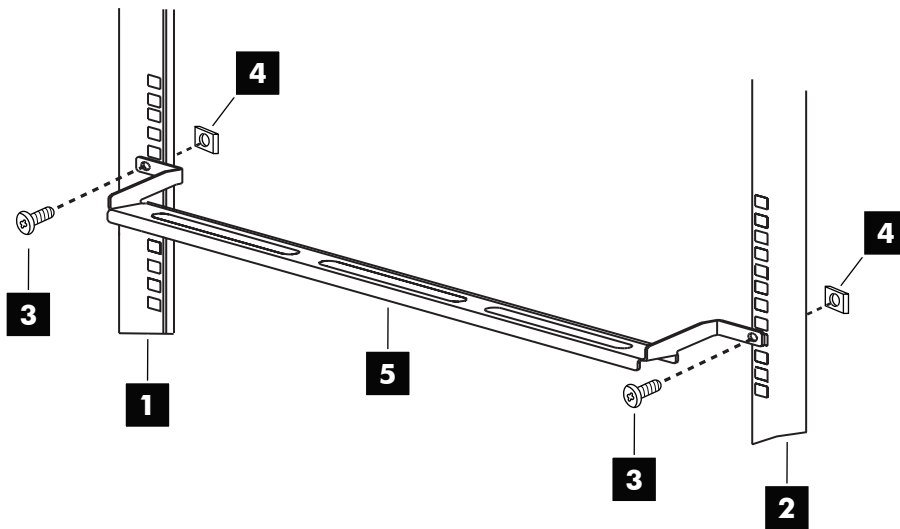
- Tools:
 - A 6-inch long #2 (medium) Phillips (Posidrive or cross-point) screwdriver, or #2 bit for a power screwdriver.
 - Cage-nut insertion tool (shipped with the rack) or a flat-bladed screwdriver.
 - Marker pen or masking tape.
- Resources: A sample cable of the type used by the system interconnect.
- Environment:
 - A work surface adjacent to the rack.
 - A stable work platform or step stool that lets you safely reach the servers installed in the upper part of the rack.

2 Installing the Kit

At the time of publication, these installation instructions apply to the specific HP servers that are identified in [Section 1.1](#). This bracket might also be adapted for other cable management uses, as specified in the installation documentation for HP Cluster Platform models. [Figure 2-1](#) shows the outward mounting position for the bracket, and the location of the two case nuts that secure the bracket to the rack. You will not be able to insert these cage nuts if the server's rail kit is already installed in the rack. The correct installation sequence for both the inward and outward mounting of the kit is:

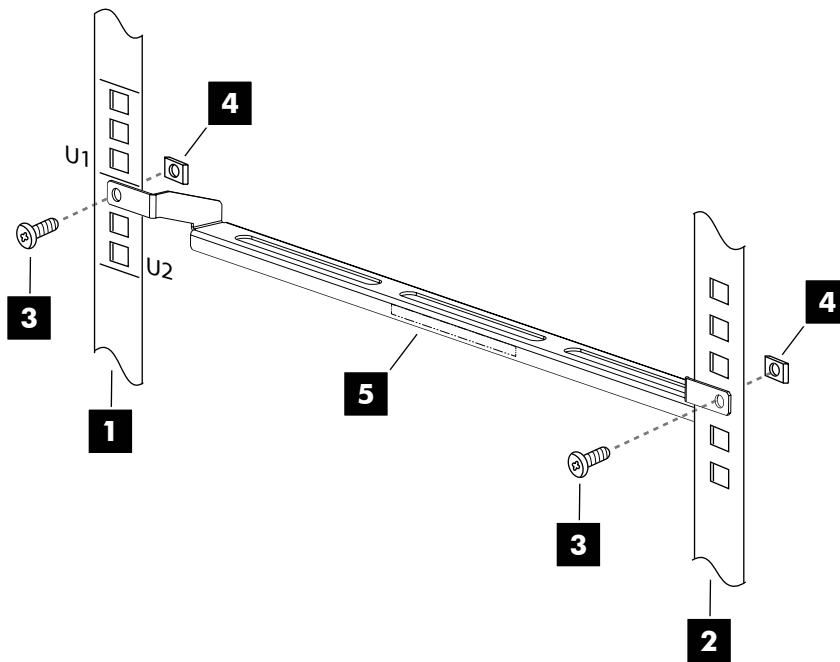
1. Hold the bracket so that it aligns with the appropriate U location on the left (callout 1) and right side (callout 2) of the rack.
2. Install the machine screws (callout 3) and cage nuts (callout 4) for the cable management bracket (callout 5).
3. Install the rail kit tracks in the rack.
4. Install the server in its rail kit.

Figure 2-1 Outward Bracket Orientation



[Figure 2-2](#) shows an inward orientation of the bracket, and the location of the two cage nuts that secure the bracket to the rack. The installation sequence is the same as that used for the outward bracket orientation.

Figure 2-2 Inward Bracket Orientation



2.1 Installing the Bracket

The location of the bracket depends on the rack position occupied by the server. The servers in an HP Cluster rack are always installed at specific rack (U) locations, depending on the design of the rack. The servers described in this document each occupy 2U of rack space (3.5 inches) and the bracket installs in the lower U of each 2U of rack space taken by a server.

For more information, consult the installation guide for your HP Cluster Platform.

To install the bracket, follow these steps:

1. Determine the installation location for the server and identify the 2U of rack space to be occupied by the server. Each U location has three mounting holes. The bracket mounts at the top hole of the lower U (shown as U2 in Figure 2-2). Mark the installation location with tape or a marker pen on both rear rack columns.
2. Clip two 10-32 cage nuts into the back of the rack at the locations that you marked in step 1. If you do not have the cage nut insertion tool, use a flat-bladed screwdriver to ease the cage clip in place.
3. Mount the quick-deploy rail kit track, according to the instructions packaged with server's rack accessory kit. No tools are required.



Note:

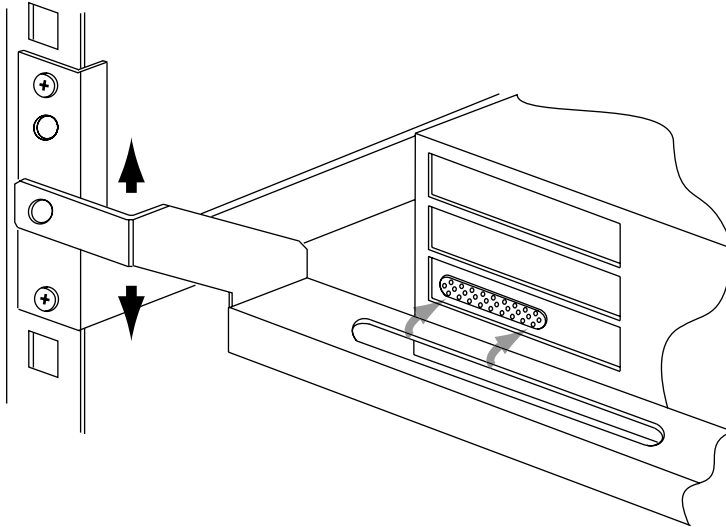
Do not assemble and mount the folding cable management bracket that is packaged with the server's rail kit. It is not required.

Each track has a mounting flange that contains accessory holes. Ensure that when the track is mounted, the lowest accessory hole aligns with the cage nut that you inserted in step 2.

If the hole and cage nut are not aligned, then either the track or the cage nut is in the wrong location. Verify the mounting location before proceeding.

4. Place the bracket against the rail flanges so that it faces inward (or outward) and downward, and is within the lower U location (U2), as shown in Figure 2-3.

Figure 2-3 Aligning the Bracket



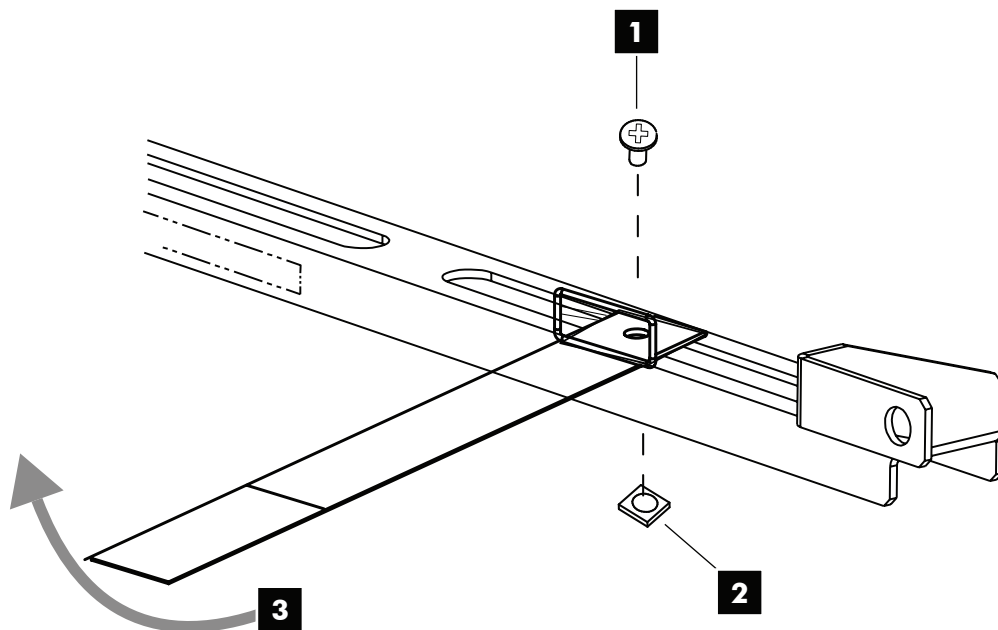
5. Using a #2 Phillips screwdriver, secure the bracket to the cage nuts by using two 10-32 x .375-inch fasteners.
6. Before installing the server, verify that it contains a PCI interconnect card installed in slot 3 (the lowest PCI slot).
7. Follow the rail kit instructions to attach the rails to the server and insert it in the track. When inserted fully into the rack, the bottom of the PCI port must align with the mounting face on the cable management bracket, as shown in Figure 2-3.

2.2 Installing The Strap

To attach the strap to the bracket, follow these steps:

1. Position the strap on the bracket, as shown in Figure 2-4, so that it is approximately adjacent to the interconnect card in the server's PCI slot.

Figure 2-4 Attaching the Strap



2. Clip an M6 cage nut into the bottom of the bracket's slot, as shown by callout 1.

3. Insert an M6 x 16-mm fastener through the metal grommet in the strap, as shown by callout 2.
4. Use a #2 (medium) Phillips screwdriver to secure the strap loosely.
5. Perform this step only when mounting the first bracket to determine the correct horizontal location of the strap.

Rotate the strap (callout 3) and move it horizontally in the elongated slot to align it with the center of the port. Using a sample cable, align the strap so that the cable's connector (plug) is aligned correctly with the port.

Use the location of this first strap to determine the correct strap mounting position for all subsequent bracket installations.

6. After aligning the strap, tighten the screw to its specified torque.

Repeat the installation procedure for subsequent bracket kits, using a marker pen or masking tape to transfer the correct horizontal location of the strap to each bracket.

When all brackets are installed, consult the cabling instructions for your cluster model before starting the cabling procedure described in Section 2.3. (See Section 1.2 for the location of the cluster documentation.)

2.3 Securing Cables Using the Straps

To secure a cable using the straps, follow these steps:

1. Connect the cable to the port in the PCI adapter and secure it mechanically by its clips, screws, or clamps.
2. Route the cable over the strap, loop the strap through its D-ring, and secure the strap by its hook-and-loop closure. Ensure that the cable is clamped tightly by the strap and that it cannot move.
3. Verify that the cable is square and level with the PCI port, with no strain on the connector. This step is important to prevent possible electromagnetic interference, which can leak past the EMI seals if the port and connector are not correctly aligned and secured.
4. When routing cables, ensure that cables remain within their bend radius specification, as defined in the documentation for your model of HP Cluster Platform.

2.4 Removing the Server for Servicing

Use the cluster software to configure the server out of service according to the instructions in the software documentation. Bring the component to an appropriate state for removal, and put the rack cabinet into a safe and stable state for component removal. You must ensure that you can reach the component easily and handle it safely.



Caution:

Consult the server and rack safety documentation before extending a server from the rack. Ensure that you label all cables with their current port destinations before extending the server from the rack. Two persons might be required to remove a server from the rack.

A server might have more than one Ethernet connection, and it is important that you connect the Ethernet cables to the correct NIC ports when the server is replaced.

To remove the server from the rack, follow these steps:

1. Switch off the power supply from the rack's power distribution unit (PDU) and disconnect the server's power cable.
2. Disconnect and remove each network cable until all of the networking ports are unplugged.
3. Unstrap the cable and remove its connector from the PCI card port. When disconnecting the cable, ensure that you do not bend it more than the recommended minimum bend radius. The cable specifications are provided in the documentation for your cluster type.

4. Temporarily loop the interconnect cable over the bracket and secure it loosely with the strap to ensure that it is undamaged while you work on the server. Do not let the cable hang by its own weight or exceed its minimum bend radius.
5. After verifying that all cables are disconnected, unlock and slide the server all the way out of the rack, as described in the documentation for the server rack kit. Never extend more than one server at a time without removing the server from the rack completely.
If you remove more than one server, ensure that each set of cables for each server is bundled temporarily and labeled for its destination server, and the specific server ports.



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