

Dell™ Systems

CABLING MULTIPLE 2-U SYSTEMS IN A RACK

**www.dell.com
support.dell.com**



Notes, Notices, Cautions, and Warnings

Throughout this guide, blocks of text may be accompanied by an icon and printed in bold type or in italic type. These blocks are notes, notices, cautions, and warnings, and they are used as follows:



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

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



CAUTION: A CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



WARNING: A WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious bodily injury.

Information in this document is subject to change without notice.

© 2001 Dell Computer Corporation. All rights reserved.

Reproduction in any manner whatsoever without the written permission of Dell Computer Corporation is strictly forbidden.

Trademarks used in this text: *Dell*, the *DELL* logo, and *PowerEdge* are trademarks of Dell Computer Corporation.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Computer Corporation disclaims any proprietary interest in trademarks and trade names other than its own.

May 2001 Rev. A01



Cabling Multiple 2-U Systems in a Rack

This document provides information about the best way to cable multiple 2-U systems in a rack. Although the instructions pertain to cabling multiple systems (as many as 21 in a 42-U rack) in a rack, the cabling practices in this document are applicable even if you are installing only one system.

Applying these cabling techniques will help you minimize the space required for your system cables and fully utilize the available space in the rack. Additionally, it will prevent problems such as cables being cut or multiple servers coming out the rack when you pull only one.

The instructions in this document apply for any Dell 2-U system, regardless of differences in back-panel connectors. See Figure 1 for examples of 2-U systems.

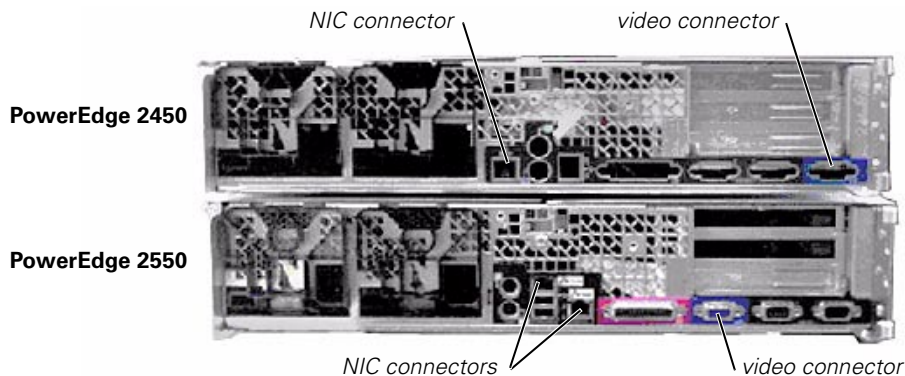


Figure 1. Sample 2-U Systems



NOTE: The information in this document pertains only to cabling the system after it is installed in the rack. For information about installing the system into the rack, see the system's Rack Installation Guide.

A. Connect All Cables to the Computer

1. Lay out all of the cables and cable ties on the floor.

For the purposes of this document, the procedure will use the following cables:

- Keyboard/video/mouse (KVM) (2 PS/2 cables and 1 video cable)

NOTE: If you are installing 21 systems in a rack, you must install the KVM switch in an adjacent rack or in the 0-U space of the rack with the systems. To install the switch in an adjacent rack, you must remove the side covers from both racks.

- Power (2)
- Small computer system interface (SCSI) (2)
- Category 5 (CAT 5)

2. Connect the cables to your system, as shown in Figure 2.

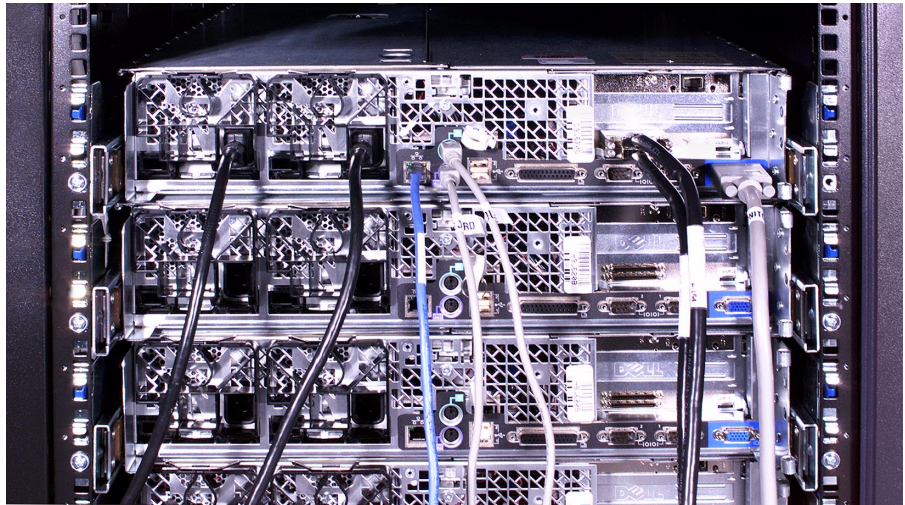


Figure 2. Connecting the Cables to the System

B. Secure the Cables to the System

1. Pull the power cables to the right and tie them together with a cable tie (see Figure 3).



NOTE: Dell offers a 2-to-1 power cable. If you use that cable, skip this step.

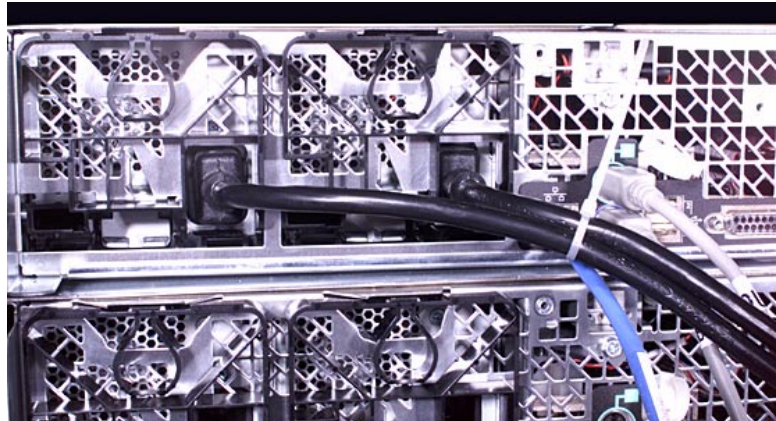


Figure 3. Tying the Power Cables Together

2. Secure both power cables to the chassis by threading a cable tie through the grate on the back on the chassis (see Figure 4).

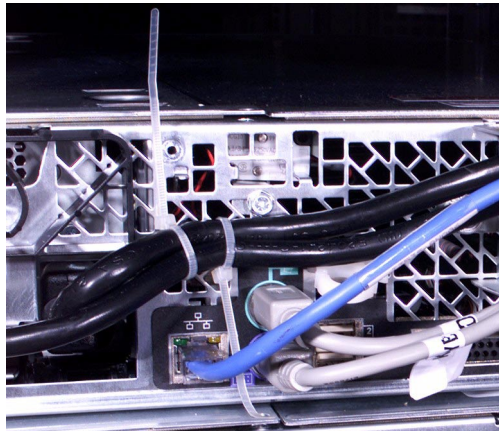


Figure 4. Securing the Power Cables to the Chassis

3. Clip off the extra part of the ties that you have used so far.
4. Put one SCSI cable and the PS/2 cables of the KVM cable through the bottom slot of the strain relief bracket (see Figure 5); position the other SCSI cable and the video cable of the KVM cable underneath the strain relief bracket.



NOTE: Only one SCSI cable can go through a slot in the strain relief bracket. Putting two SCSI cables through one slot of the bracket creates too much strain on the cables. If you use only one SCSI cable, place that cable through a slot in the strain relief bracket.

5. Secure the strain relief bracket to the system as shown in Figure 5 by installing the bracket's thumbscrew into the appropriate hole on the chassis.

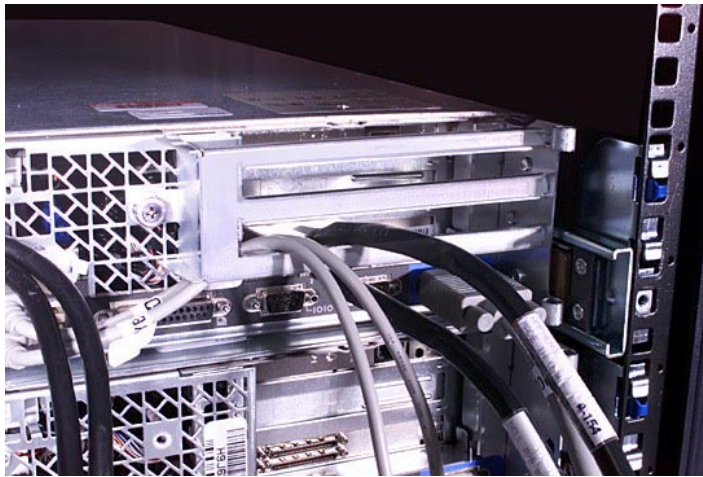


Figure 5. Securing the Strain Relief Bracket to the System

6. Using cable ties, secure the power cables and the CAT 5 cable to the top bar of the strain relief bracket near the left corner and approximately 2 inches from the right corner of the bracket (see Figure 6).

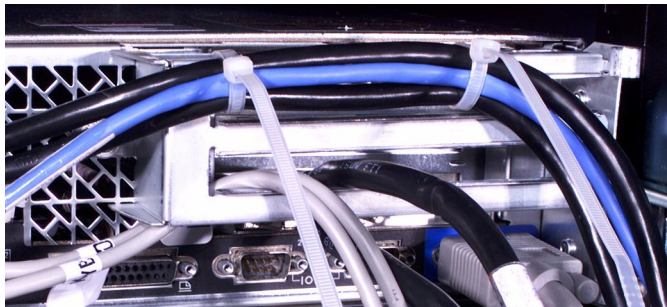


Figure 6. Securing the Power and CAT 5 Cables to the Strain Relief Bracket

7. Secure the PS/2 cables of the KVM cable to the bottom of the strain relief bracket approximately 2 inches from the right corner (see Figure 7).

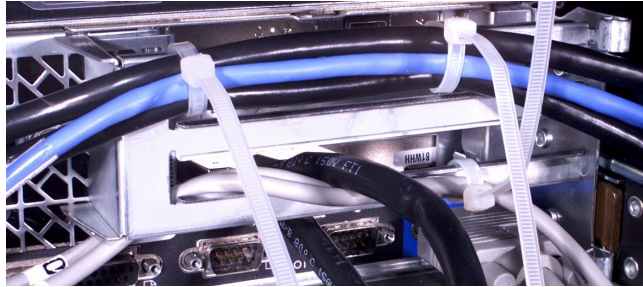


Figure 7. Securing the PS/2 Cables to the Strain Relief Bracket

8. Clip off the extra part of the ties that you have used so far.

C. Attach the Cable Management Arm to the Computer

1. Hold the cable management arm so that the tab on the mounting bracket is at the bottom.
2. Pull down the top disconnect knob on the cable management arm, making sure that top pin is retracted and that the bottom pin is extended, as shown in Figure 8.

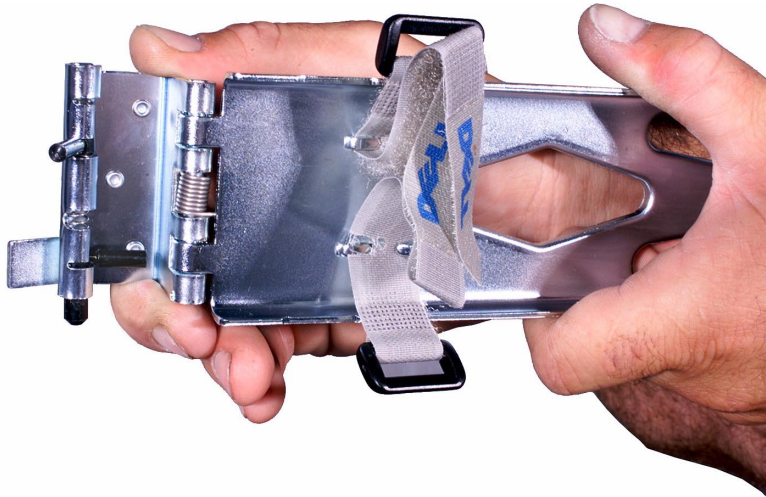


Figure 8. Setting the Disconnect Knob on the Cable Management Arm

3. Attach the cable management arm to the system by placing the bottom pin of the cable management arm in the bottom receptacle on the bracket (see Figure 9).

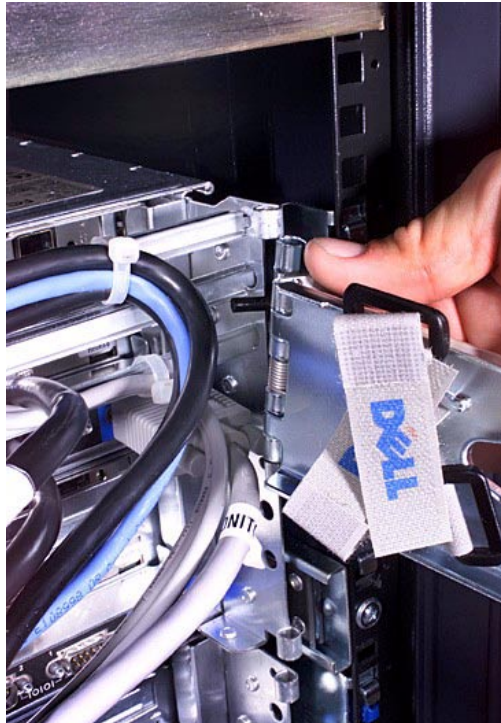


Figure 9. Attaching the Cable Management Arm

4. Rotate the arm so that the top pin is aligned with the top receptacle of the cable management arm bracket.
5. Pull the top disconnect knob to release the top pin of the cable management arm and lock it in place in the top receptacle of the bracket.

D. Secure the Cables to the Cable Management Arm

1. Fully extend the cable management arm, and support the arm so that it is parallel to the floor.

This step prevents the arm from sagging while you route the cables along the arm.

2. Undo the Velcro straps on the cable management arm.

3. Using the top Velcro strap, secure the two power cables and the CAT 5 cable to the top of the cable management arm (see Figure 10).



NOTE: If you have a small amount of cable and excess strap, pull the strap as tight as possible. Next, secure as much of the Velcro strap as possible on both sides of the cable bundle.



Figure 10. Securing the Power and CAT 5 Cables to the Cable Management Arm

4. Secure the two PS/2 cables of the KVM cable and the two SCSI cables to the bottom of the cable management arm (see Figure 11).

NOTICE: Do not secure the video cable of the KVM cable to the cable management arm with the strap nearest to the system. Placing the cable in the first strap will prevent the cable management arm from closing or damage the video cable connector.

Use the next strap to the right to begin securing the video cable. Make sure that the video cable runs underneath the cable management arm until it is placed in the strap.

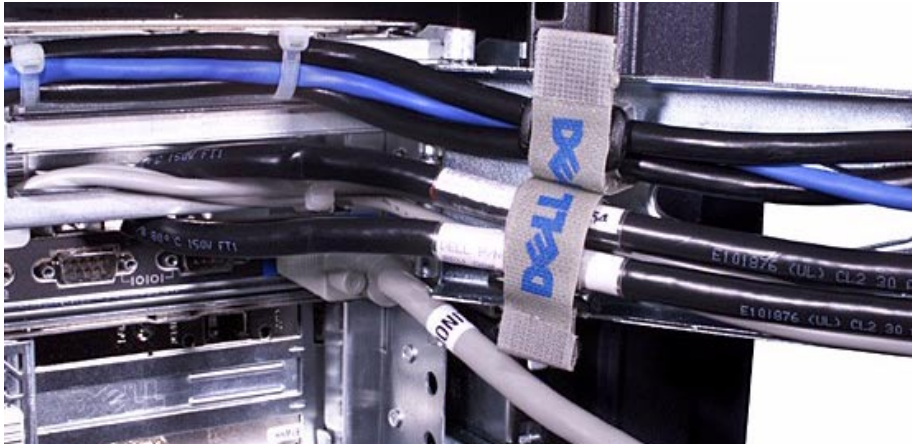


Figure 11. Securing the PS/2 and SCSI Cables to the Cable Management Arm

5. Use a large cable tie to secure all of the cables to the end of the cable management arm nearest to the system (see Figure 12).

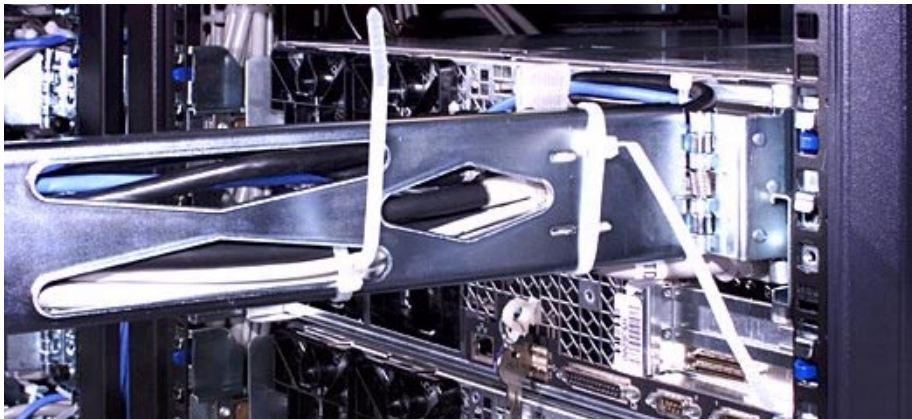


Figure 12. Securing the Cables to the Cable Management Arm

6. Use cable ties to secure the cables along the remaining length of the cable management arm as necessary.
7. Clip off the extra part of the ties that you used on the cable management arm.
8. Attach the free end of the cable management arm to the right side of the rack by tightening the thumbscrew (see Figure 13).

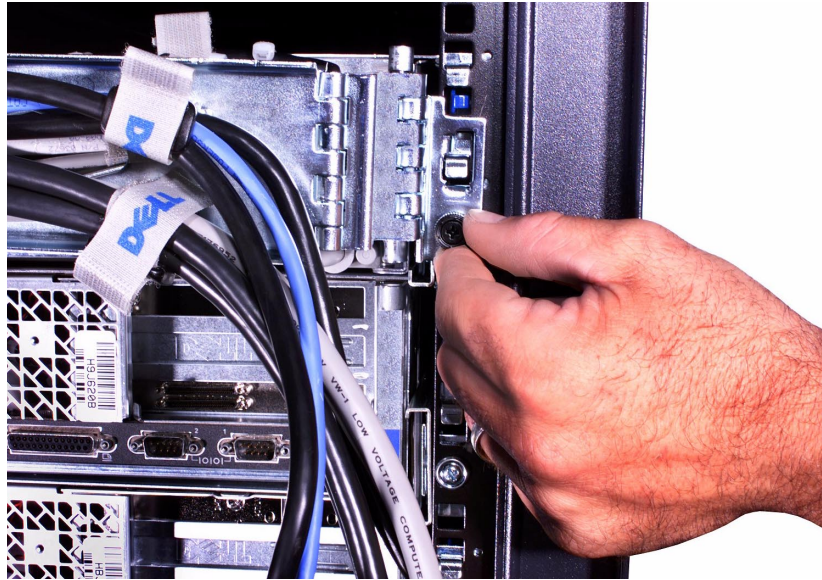


Figure 13. Attaching the Cable Management Arm to the Rack

E. Route the Cables Through the Rack

1. Thread a cable tie through the equipment mounting flange on the right side of the rack, and secure the power cables and the CAT 5 cable (see Figure 14).



NOTE: In order to not use any more space on the rack than normally required for the system, you must tie the cords at the exact position on the equipment mounting flange (in relation to the system) shown in Figure 14.



Figure 14. Securing the Power and CAT 5 Cables to the Rack

2. Pull all three parts of the KVM cable and both SCSI cables back to the left, and secure them to the equipment mounting flange on the left side of the rack with a cable tie threaded through the top hole of the 1-U space (see Figure 15).



NOTE: Before securing the KVM and SCSI cables to the rack, ensure that the system can be fully extended without placing any strain on the cables, which could damage the cables or cable management arm.



Figure 15. Securing the KVM and SCSI Cables to the Rack

3. Clip off the extra part of the ties that you have used.
4. Route the cables to the appropriate device using the following guidelines:
 - On each side, tie the cable bundle together approximately every 10 inches.
 - Do not place the cables down the rack post channels. Place them in the space between the posts on each side of the rack.
 - If you are running the cables to an adjacent rack, secure the cables to that rack before connecting them to the system.

