

42U System Cabinet Guide

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Preface

- About this guide

This guide describes the following tasks and topics:

 - ◆ Preparing your site for system cabinet installation
 - ◆ Unpacking and installing the system cabinet
 - ◆ Removing and installing components in the system cabinet
 - ◆ Maintaining the power distribution units (PDU)

This guide does not cover basic system or network administration, which is covered in the *System Administration Guide*.
- Audience

This guide is for qualified system administrators and service personnel who are familiar with Network Appliance™ storage appliances, disk shelves, and PDUs.
- Terminology

This guide uses the following terms:

 - ◆ *FRU* refers to any field-replaceable unit that is replaceable at the customer site.
 - ◆ *Storage appliance* refers to any filer, NearStore® system, or NetCache™ appliance.
- Formatting conventions

The following table lists different character formats used in this guide to set off special information.

Formatting convention	Type of information
<i>Italic type</i>	◆ Words or characters that require special attention. ◆ Placeholders for information you must supply. For example, if the guide requires you to enter the <code>fc test adaptername</code> command, you enter the characters “fc test” followed by the actual name of the adapter. ◆ Book titles in cross-references.

Formatting convention	Type of information
Monospaced font	◆ Command and daemon names. ◆ Information displayed on the system console or other computer monitors. ◆ The contents of files.
Bold monospaced font	Words or characters you type. What you type is always shown in lowercase letters, unless your program is case-sensitive and uppercase letters are necessary for it to work properly.

Special messages

This guide contains special messages that are described as follows:

Note

A note contains important information that helps you install or operate the system efficiently.

Caution

A caution contains instructions that you must follow to avoid damage to the equipment, a system crash, or loss of data.

WARNING

A warning contains instructions that you must follow to avoid personal injury.

Safety Information (Sicherheitshinweise)

Safety rules

All products are Class 1 laser devices. You must follow these safety rules when working with this equipment:

WARNING

Failure to follow these directions could result in bodily harm or loss of life.

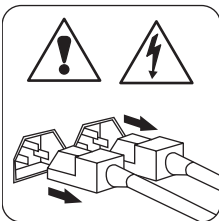
- ◆ **Switzerland only—for FAS900, GF900, R200, and C6200 systems:**
This equipment relies on fuses/circuit breakers in the building installation for overcurrent protection. Each power supply must receive power from a separately dedicated outlet with a 10A fuse/circuit breaker.
- ◆ When installing disk shelves and a storage appliance into a movable cabinet or rack, install from the bottom up for best stability.
- ◆ DC-based systems must be installed in a restricted access location and the two input power terminals for the DC power supply must be connected to separate isolated branch circuits.
- ◆ To reduce the risk of personal injury or equipment damage, allow internal components time to cool before touching them and ensure that the equipment is properly supported or braced when installing options.
- ◆ This equipment is designed for connection to a grounded outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.
- ◆ This equipment has one or more replaceable batteries. There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warning for units with multiple power cords

If your storage appliance or disk shelf has multiple power cords and you need to turn the unit off, heed the following warning:

WARNING

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect all power supply cords before servicing.



Sicherheitsvorgaben

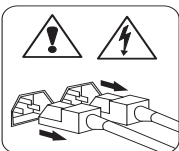
Alle Produkte sind Lasergeräte der Klasse 1. Die folgenden Sicherheitshinweise sind beim Betreiben des Geräts unbedingt zu beachten:

Vorsicht

Nichtbeachtung dieser Anweisungen kann zu schweren Körperschäden führen oder tödlich sein.

- ◆ **Nur für die Schweiz - Systeme FAS900, GF900, R200 und C6200:**
Diese Geräte erfordern den Festeinbau von Sicherungen zum Überstromschutz. Jeder Netzanschluss muss mit Strom aus getrennten, speziell für diesen Zweck vorgesehenen Steckdosen versorgt werden, die jeweils mit einer 10A-Sicherung geschützt sind.
- ◆ Bei der Montage der Diskettenregale und Archivierungsgeräte, des NetCache™ -Geräts oder des NearStore® -Systems in bewegliche Schränke oder Regale sind die Geräte von unten nach oben einzubauen, um optimale Stabilität zu gewährleisten.
- ◆ Gleichstrom-Systeme müssen an Betriebsstätte mit beschränktem Zutritt installiert sein und die beiden Eingangsstromklemmen für das Gleichstrom-Netzteil müssen an separate und isolierte Abzweigleitungen angeschlossen sein.
- ◆ Zum Schutz vor Körperverletzung oder Sachschäden am Gerät lassen Sie die inneren Bauteile stets vor dem Berühren abkühlen. Sorgen Sie dafür, dass das Gerät richtig abgestützt ist oder fest aufrecht steht, bevor Sie neues Zubehör einbauen.
- ◆ Dieses Gerät ist für die Einspeisung aus einer geerdeten Netzverbindung ausgelegt. Der Netzstecker mit Erdungsvorrichtung ist ein wichtiger Sicherheitsschutz. Zum Schutz vor elektrischem Schlag oder Sachschäden am Gerät die Erdung nicht abschalten.
- ◆ Das Gerät ist mit einer oder mehreren auswechselbaren Batterien ausgestattet. Bei unsachgemäßem Auswechseln der Batterie besteht Explosionsgefahr. Batterien nur mit dem vom Hersteller empfohlenen Typ oder entsprechenden Typen ersetzen. Gebrauchte Batterien sind gemäß den Anweisungen des Herstellers zu entsorgen.

Warnhinweis für Geräte mit mehrfachen Netzanschlussleitungen



Sollte Ihr Archiviergerät, NetCache-Gerät, NearStore-System oder Diskettenregal mehrfache Netzanschlussleitungen aufweisen und Sie wollen das Gerät abschalten, bitte folgenden Warnhinweis beachten.

ACHTUNG

Gerät besitzt zwei Netzanschlussleitungen. Vor Wartung alle Anschlüsse vom Netz trennen.

About this chapter

This chapter describes the features and functions of the system cabinet. It also describes the steps needed to prepare the site for installation of the system cabinet.

Topics in this chapter

The following topics are discussed in this chapter:

- ◆ “[System cabinet characteristics and specifications](#)” on page 2
- ◆ “[Preparing for installation](#)” on page 7

System cabinet characteristics and specifications

System cabinet dimensions and specifications

The system cabinet has the following dimensions and specifications.

Dimension	U.S.	Metric
Height	78.7 in.	200 cm
Depth	37.4 in.	95 cm
Width	23.6 in.	60 cm
Total rack space, 42U	73.5 in.	186.7 cm
Rail load capacity	125 lbs	56.7 kg
Empty weight	275 lbs	124.7 kg
Fully loaded static weight	Up to 1,500 lbs	Up to 680 kg
Front and rear service clearance	30 in.	76.3 cm
Minimum side clearance for panel removal	24 in.	61 cm
Minimum top clearance	12 in.	30 cm

System cabinet features

The following table lists the general features of the system cabinet.

Feature	Description
Side panels	Lockable, removable and interchangeable side panels with a quick release mechanism built in.
Perforated front and rear doors	Removable front and rear doors with a quick release mechanism. Both doors are perforated for cooling.
Common key	This key unlocks the front and rear doors, along with the side panels.

Feature	Description
Spares kit	This kit includes extra clip nuts, screws, touch-up paint, and cabinet keys.
Cable access	Cable pass-throughs are built into the top and bottom of the cabinet, as well as between the bottom of the rear door and the frame.
Cable management	The cabinet has built-in cable management and routing features. This allows for efficient cable routing, making the equipment easily accessible from the rear of the system cabinet.
Support rails	The base system cabinet has 13 pairs of support rails. Additional support rails can be installed with the addition of one or more support rail kits.
Blanking panels	An empty system cabinet has six, 3U blank panels installed. Additional panels can be ordered.
PDUs (power distribution units)	The system cabinet can have one of the following number and type of PDUs mounted at the back of the system cabinet: ◆ 20A PDUs—four, 0U (zero U) PDUs, with eight outlets per PDU, mounted two per side. ◆ 30A PDUs—two, 0U PDUs, with 16 outlets per PDU, mounted one unit per side. The power cables are 15 feet long.
Bolt-down kit	This optional kit allows for the securing of the system cabinet to the data center floor.
Interconnect kit	This optional kit allows for multiple system cabinets to connect to each other.
Support rail kit	This optional kit allows for additional rails to be installed to support additional equipment.

System cabinet capacity

The system cabinet can be configured in one of the following ways.

Configuration type	Storage appliances in system cabinet	Maximum # of disk shelves or other equipment in system cabinet	
		DS14/DS14mk2-FC	NearStore disk shelves
Storage only	0	14	N/A
Single system cabinet	1	12	
Cluster in a single system cabinet	2	10	
Multiple system cabinets—single storage appliance	1	$12 + 14n$, where n equals the number of system cabinets in the configuration.	
Cluster in multiple system cabinets	2	$10+10+14n$	
NearStore R100	1	N/A	7
NearStore R150	1		5 or 9
NearStore R200	1		12 DS14mk2 FC-AT
SpinServer ® 4100	4	4 UPS units	
			Number of switches in system cabinet
Cisco® 91X0 switches—system has 16 disk shelves	1	11, remainder in second system cabinet	2 in first system cabinet
Cisco 91X0 switches—system has 32 disk shelves	1 in first and second system cabinet	11 in first two cabinets, remainder in third system cabinet	1 in first two system cabinets

Configuration type	Storage appliances in system cabinet	Maximum # of disk shelves or other equipment in system cabinet	
Cisco 9216 switches—system has 16 disk shelves	1	8, remainder in second system cabinet	2 in first system cabinet
Cisco 9216 switches—system has 32 disk shelves	1 in first and second system cabinet	10 in first two cabinets, remainder in third system cabinet	1 in first two system cabinets
Cisco 9506 switches	1	9	1 switch
Cisco 9506 switches	1 in first and second system cabinet	9 in first two cabinets, remainder in third system cabinet	1 in first two system cabinets
Cisco 9509 switches	1 in first and second system cabinet	6	1 switch
Cisco 9509 switches	1	6 in first two cabinets, remainder in the remaining system cabinets	1 in first two system cabinets

Regulatory requirements

The system cabinet has redundant power. It complies with FCC (domestic) and the European Union regulatory guidelines (Euro). It has been tested for use only with rack-mounted equipment supplied by Network Appliance. Do not use rack-mounted equipment not supplied by Network Appliance because this might void some or all regulatory compliance certifications.

For detailed regulatory compliance information, see “[Regulatory notices](#)” on page 52.

System cabinet electrical requirements

The following table lists the electrical requirements of a fully configured system cabinet.

Note

For complete power redundancy, connect the PDUs to four separate AC circuits.

Cabinet type	Power requirement	Power connector
Domestic	20A (derated to 16A) 200–240V AC, 50/60Hz x 4	NEMA L6-20 x 4
	30A (derated to 24A), 200–240V AC, 50/60Hz x 2	NEMA L6-30 x 2
International	20A 200–240V AC, 50/60Hz x 4	IEC309 16/20 x 4
	30A (derated to 24A), 200–240V AC, 50/60Hz x 2	IEC309 (32A) x 2
Australia	20A 200–240V AC, 50/60Hz x 4	AS/NZS3123-20 x 4

Preparing for installation

Tasks to complete to prepare your site

To prepare your site for system cabinet installation, complete the following steps.

Step	Action
1	Review and meet the electrical requirements for the system cabinet. See “System cabinet electrical requirements” on page 6.
2	Review and meet the space requirements. See “System cabinet dimensions and specifications” on page 2.
3	Assemble the tools and user guides you need for the installation.
4	Verify the contents of your system cabinet shipment. See “Checking shipment contents” on page 10.

Required additional tools and equipment

You must supply the following additional tools and equipment to install the system cabinet:

- ◆ The appropriate hardware guide for your disk shelves
- ◆ #1 and #2 Phillips screwdrivers
- ◆ Hand level

Where to go next

After preparing your site for system cabinet installation, you are ready to install the system cabinet, as described in Chapter 2, [“Setting Up the System Cabinet,”](#) on page 9.

About this chapter

This chapter describes how to set up a system cabinet that arrives with the disk shelves and storage appliance installed and also describes how to install equipment into an empty system cabinet.

Topics in this chapter

This chapter discusses the following topics:

- ◆ [“Checking shipment contents”](#) on page 10
- ◆ [“Setting up a preinstalled system cabinet”](#) on page 12
- ◆ [“Setting up an empty system cabinet”](#) on page 18

Checking shipment contents

System cabinet package contents

The following list specifies the components that you should find packaged with an empty system cabinet:

- ◆ One spares kit
- ◆ Six 3U blank panels
- ◆ Four power cords appropriate for your location

Spares kit contents

The following list specifies the components in the spares kit, which is shipped with the system cabinet:

- ◆ Twenty 10-32 x .75 inch Phillips pilot point screws
- ◆ Twenty 10-32 clip nuts
- ◆ One clip nut insertion tool
- ◆ Two master key copies
- ◆ One container of RAL 7015 charcoal gray touch-up paint

Bolt-down kit

The following list specifies the components in the bolt-down kit, which is optional for the system cabinet. The bolt-down kit provides additional stability to the system cabinet. This kit is an option and is ordered through your NetApp® sales representative.

- ◆ Four bolt-down shoes
- ◆ Four mounting bolts

Cabinet interconnect kit

The following list specifies the contents of the cabinet interconnect kit, which is used to connect two or more system cabinets together. This kit is an option and is ordered through your NetApp sales representative.

- ◆ Two 4 mm Allen wrenches
- ◆ Four connecting sleeves
- ◆ Eight mounting screws

Support rail kit

The following list specifies the contents of the support rail kit, which is used to add additional support rails to the system cabinet. This kit is an option and is ordered through your NetApp sales representative.

- ◆ One left and one right support rail
- ◆ One 300 mm long grounding cable
- ◆ Two threaded roll forming screws

Setting up a preinstalled system cabinet

Moving the system cabinet into place

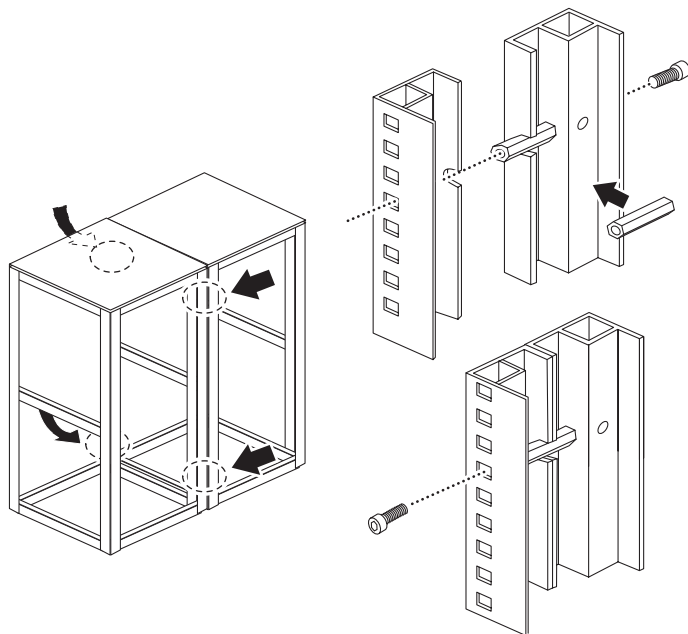
The system cabinet has nonlocking casters on all four bottom corners. The system cabinet easily rolls into place, but you should consider the following when moving a loaded system cabinet:

- ◆ Move the system cabinet slowly on uneven surfaces. This prevents tipping of the system cabinet.
- ◆ Never push the system cabinet from the top of the system cabinet.
- ◆ Do not use an open door to push the system cabinet. Always have the doors closed or removed to prevent them from catching on anything. It is easier to move the cabinet with handles as push or pull points.
- ◆ Never push the system cabinet by the perforated portion of the doors.

Connecting two or more system cabinets together

If you ordered a multicabinet system, you connect them together using the optional cabinet interconnect kit.

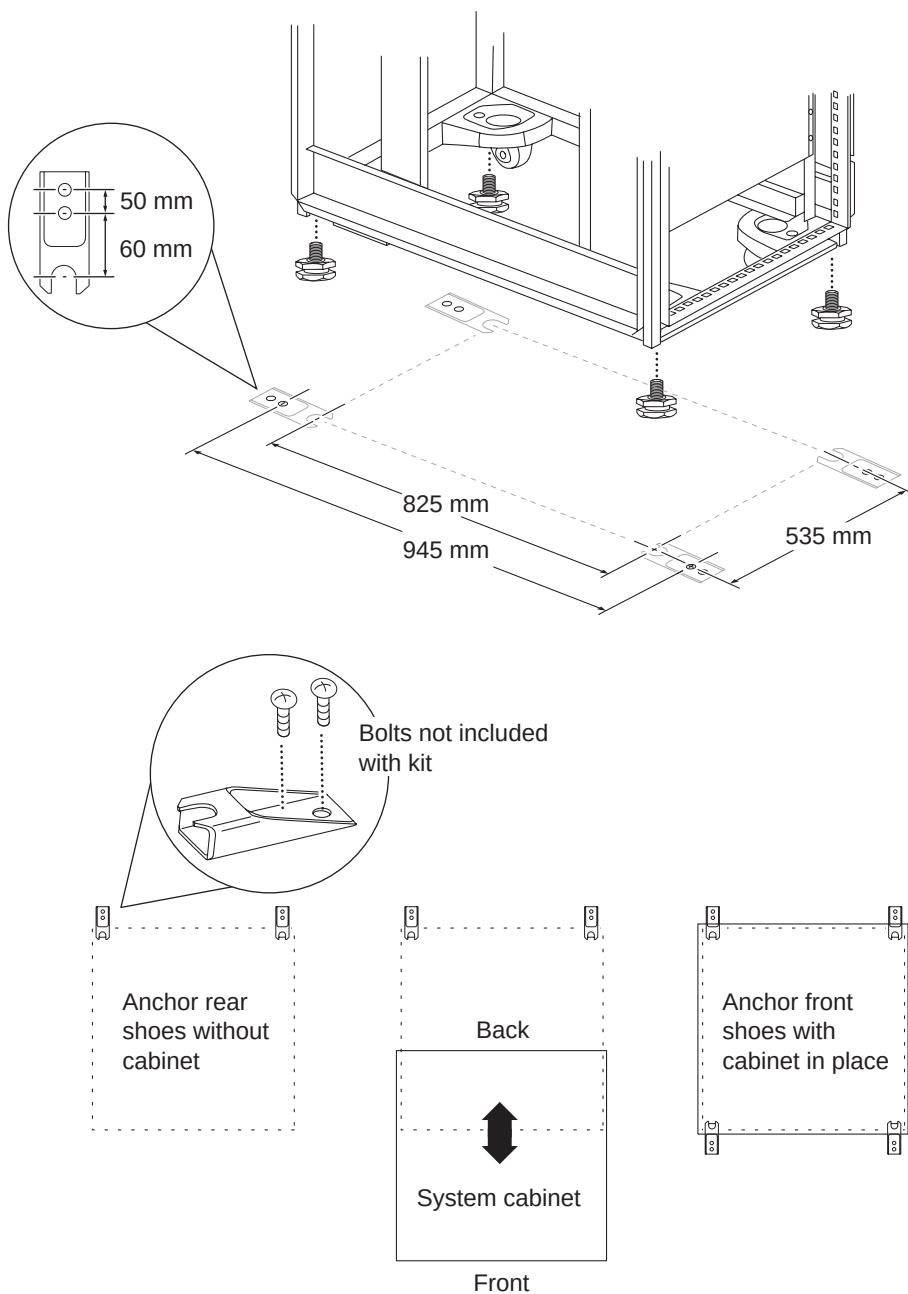
To connect one or more system cabinets together, complete the following steps, using the diagram for reference.



Step	Action
1	Place the system cabinets together, but leave enough space for you to work between the system cabinets.
2	Remove the adjacent side panels of the two system cabinets to be connected, as described in “Removing the side panels” on page 21.
3	Move the system cabinets together, and align and level them by adjusting the four leveling feet at the bottom of the system cabinet.
4	Connect the cabinets together by inserting the connecting sleeve into the U-slot in the upper corner of the system cabinet upright, and then into the same U-slot in the other system cabinet.
5	Secure the connecting sleeve to the system cabinet uprights with the Allen screws and wrenches.
6	Repeat Steps 3 and 4 for the rear upright and the two bottom corners.
7	Repeat the process for any remaining system cabinets.
8	Connect the cabinet to the power sources and boot the system, as described in “Powering on the system cabinet” on page 16.

Installing the bolt-down kit

To install the bolt-down kit, complete the following steps, using the diagram for reference.



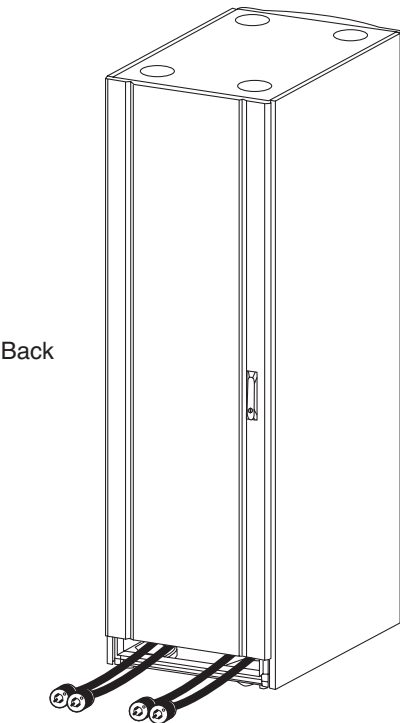
Step	Action
1	Screw the mounting bolts into each of the four corners of the system cabinet. Do not tighten the anchors all the way.
2	Mark the anchor points where the rear bolt-down kit shoes will be anchored to the floor.
3	Anchor the rear bolt-down shoes to the floor, using the appropriate anchoring method for your floor. Make sure to face the bolt-down shoes in the same direction, so you can roll the system cabinet into them.
4	Align the system cabinet with the rear bolt-down shoes and slide the system cabinet into place.
5	Slide the front pair of bolt-down shoes onto the mounting bolts, then anchor the front shoes to the floor, using the appropriate anchoring method for your floor.
6	Tighten the mounting bolts into the four shoes, making sure that they securely anchor the cabinet to the shoes and are level.

Powering on the system cabinet

To connect the system cabinet to a power source and power it on, complete the following steps, using the diagram for reference.

Note_____

The diagram uses 20A PDUs. The 30A PDUs have only one power cable each that must be connected to the power source.



Step	Action
1	Feed the PDU power cables through an opening in the system cabinet. Use one of the following openings: ◆ The top of the system cabinet ◆ Between the rear door bottom and frame of the system cabinet ◆ Through the floor opening and under the system cabinet
2	Turn the power switches on the PDUs to Off.

Step	Action
3	Plug each PDU power cable into individual AC power sources that are on separate AC circuits.
4	Turn on the power switches to the PDUs, then apply power to your components and boot the system, as described in the appropriate hardware manual.

Setting up an empty system cabinet

About setting up an empty system cabinet

Setting up an empty system cabinet consists of the following tasks:

- ◆ Removing the front and rear doors or side panels, as needed
- ◆ Removing the blanking panels
- ◆ Installing the disk shelves, switches, and storage appliance in the system cabinet
- ◆ Cabling the equipment to the system cabinet PDUs
- ◆ Installing the system cabinet doors
- ◆ Applying power and booting the equipment

For detailed information

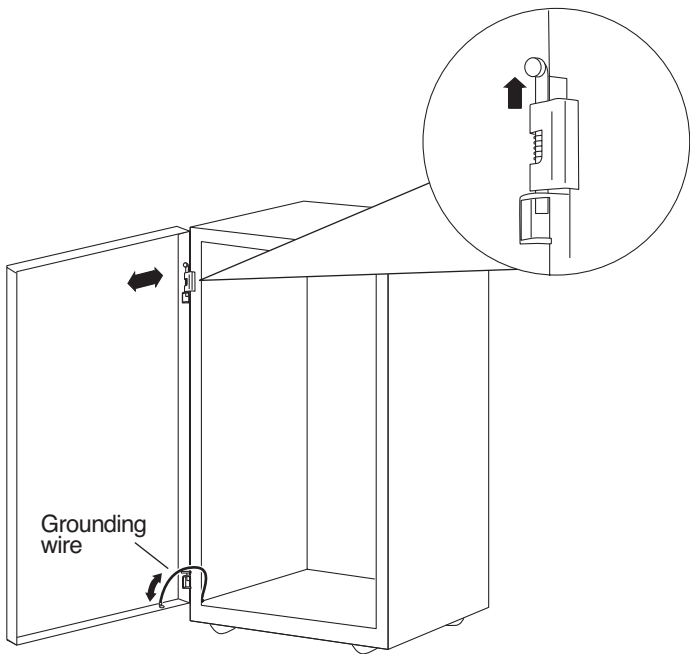
For detailed information about installing equipment into an empty system cabinet, see the following sections.

- ◆ [“Removing the doors”](#) on page 19
- ◆ [“Removing the side panels”](#) on page 21
- ◆ [“Removing the blanking panels”](#) on page 22
- ◆ [“Installing the storage appliance and disk shelves”](#) on page 23
- ◆ [“Reassembling the system cabinet”](#) on page 29
- ◆ [“Connecting to power and booting the equipment”](#) on page 32

Removing the doors

Reason for removing the doors Removing the doors from the system cabinet gives you easier access to the posts (EIA rails) inside the system cabinet.

Removing the doors To remove a door from the system cabinet, complete the following steps, using the diagram for reference.



Step	Action
1	Unlock the system cabinet door, then open it by lifting the door handle up and out, then turning it clockwise.
2	Disconnect the grounding wire from the inside bottom corner of the door.

Step	Action
3	Lift the lever on the top hinge of the door so that it clears the bottom of the hinge block.
4	Tilt the top of the door slightly so that it clears the hinge block, then lift the door off the bottom hinge pin, and set it aside.

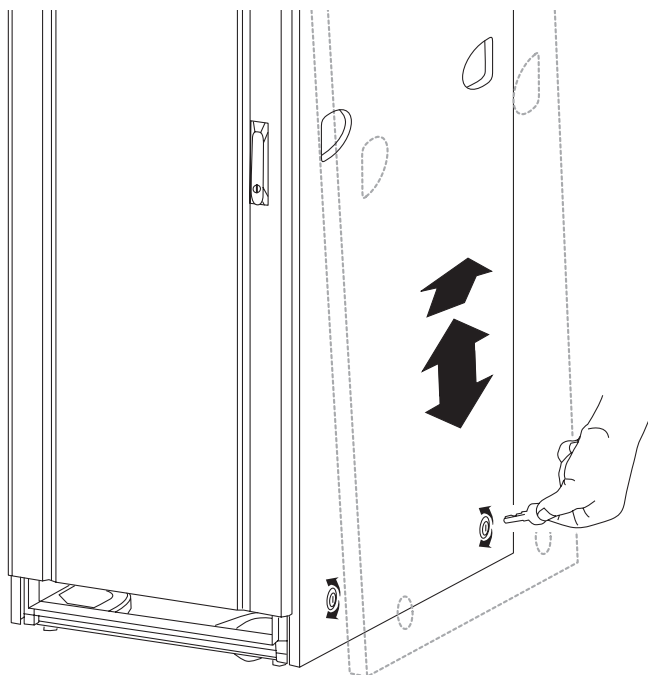
Removing the side panels

Reason for removing the side panels

Removing the system cabinet side panels gives you easier access to the interior of the system cabinet and components. You must remove adjacent side panels when connecting two or more system cabinets together.

Removing the side panels

To remove the side panels, complete the following steps, using the diagram for reference.



Step	Action
1	Unlock the side panel and lift it until it clears the frame, then set the panel aside.
2	Repeat Step 1 for the other side panel, if needed.

Setting up an empty system cabinet

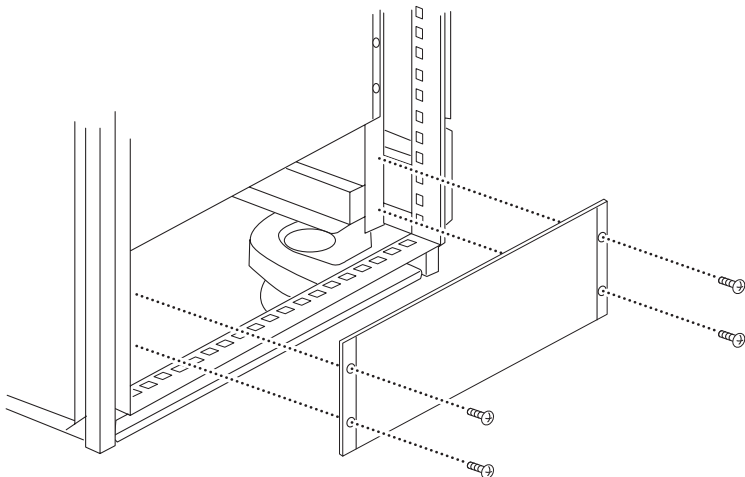
Removing the blanking panels

Reasons for removing blanking panels

The blanking panels are installed in the system cabinet to control the airflow through the unit. Individual panels should only be removed when installing disk shelves or storage appliances in the system cabinet. Removing them for any other reason modifies the designed air circulation and disrupts airflow.

Removing the blanking panels

To remove the blanking panels, complete the following steps, using the diagram for reference.



Step	Action
1	Unlock and open the system cabinet front door.
2	Remove the screws from the blanking panel, then remove the panel from the system cabinet.

Installing the storage appliance and disk shelves

About installing disk shelves and storage appliances

Disk shelves and storage appliance installation in the system cabinet is a two-part process:

- ◆ Remove or move the support rails inside the system cabinet
- ◆ Install the disk shelves onto the support rails

Determining equipment space requirements

The uprights of the system cabinet are marked in Us, where one U equals 1.75 inches. Starting from the bottom of the system cabinet, The 13 pairs of support rails are installed to accommodate twelve 3U disk shelves and one 6U storage appliance. Depending on the size of the storage appliance and number of disk shelves to be installed, you might need to move, remove or add support rails before installing your equipment.

Always install the disk shelves in the system cabinet from the bottom of the cabinet, up. The storage appliance should be installed between the 19 and 24 U mark on the posts, followed by the balance of the disk shelves.

In a cluster in a single cabinet, both nodes should be installed on top of each other, beginning at the 16U mark through the 28U mark on the posts.

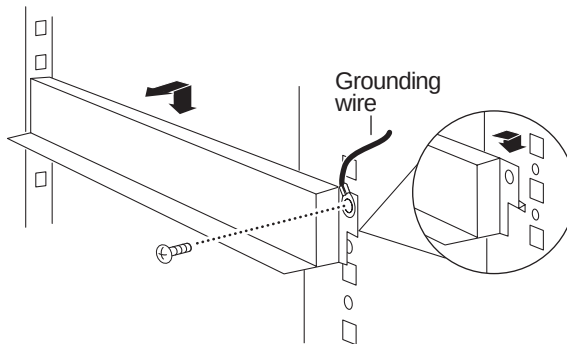
To calculate the total space needed for your system, complete the following steps.

Step	Action
1	Determine the U height of your appliance by dividing the height in inches by 1.75 and rounding up to the next closest U. Example: Appliance height of 5 inches/1.75 = 4.75, rounded to 5U.
2	Determine the height of each disk shelf to be installed, then multiply it by the number of disk shelves. Example: 10 DS14 disk shelves of 5.25 inches/1.75 = 3U * 10 shelves = 30U required.

Step	Action
3	Add the U space required by both the appliance and disk shelves to get the total required U space. Example: 5U (appliance) + 30U (disk shelves) = 35U required space.

Removing or moving support rails

To remove or move a support rail, complete the following steps, using the diagram as reference.

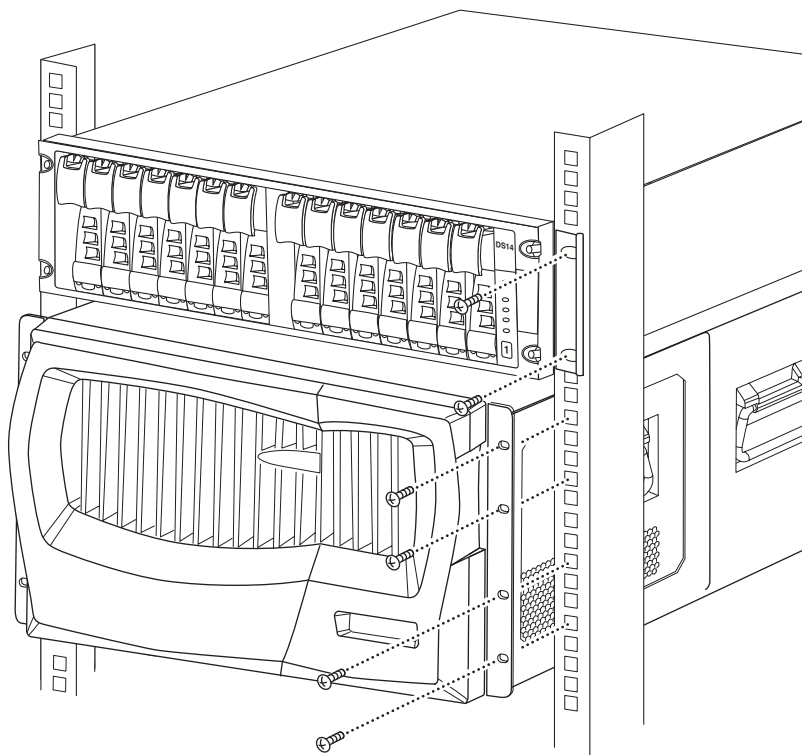


Step	Action
1	Unlock and open the system cabinet rear door.

Step	Action	
2	If you are...	Then...
	Removing the support rail	1. Remove the #2 Phillips screw and grounding wire from the rear inside of the left support rail and set the grounding wire and screw aside. 2. Lift up on the rail and guide it toward the center of the system cabinet and set it aside.
	Moving the support rail	1. Identify the new location for the support rail and note the U number on the front of the upright. 2. Move the support rail to the new location, making sure that the bottom of the support rail is even with the new location number. 3. Secure the support rail and grounding wire to the upright with the screws that were removed. 4. Repeat Steps 1 through 3 for the other support rail, making sure that they are anchored in the same locations on each upright. 5. Install your equipment, from the bottom of the system cabinet to the top. This ensures system cabinet stability.
3	Repeat Steps 1 and 2 for the right support rail	

Installing the storage appliance

To install the storage appliance, complete the following steps, using the diagram for reference.



Step	Action
1	Unlock and open the system cabinet front and rear doors.
2	Calculate the space you need in the system cabinet, as described in “Determining equipment space requirements” on page 23.
3	Remove the appropriate number of blanking panels, starting from the bottom of the system cabinet, as described in “Removing the blanking panels” on page 22.

Step	Action
4	Rearrange support rails as necessary, as described in “Removing or moving support rails” on page 24.
5	Slide the storage appliance on the bottom rail in the system cabinet, then secure it to the upright with the mounting screws that come with the storage appliance.
6	Attach the grounding cables to the storage appliance with the screws that come with the storage appliance.
7	Plug the storage appliance power cord into the nearest PDU outlet on each side of the system cabinet, ensuring that each power supply is plugged into a redundant PDU.
8	Connect the storage appliance to the network, as described in the appropriate hardware guide.
9	Go to “Installing the disk shelves” on page 27.

Installing the disk shelves

To install the disk shelves and any switches, complete the following steps.

Step	Action
1	Rearrange support rails as necessary, as described in “Removing or moving support rails” on page 24.
2	Slide the disk shelf on the rail directly above the storage appliance, then secure it to the upright with the mounting screws that come with the disk shelf.
3	Repeat Step 2, placing the next disk shelf on the open support rail above the last disk shelf and securing it to the system cabinet upright, until all disk shelves are installed.

Step	Action	
4	If you are installing...	Then...
	Disk shelves only	Go to Step 5.
	Disk shelves and a switch	Slide the switch on the rail directly above the disk shelf, then secure it to the upright with the mounting screws that come with the switch.
5	Attach the grounding cables to all equipment installed in the system cabinet, using the screws supplied with the equipment.	
6	Plug the disk shelf power cord into the nearest PDU outlet on each side of the system cabinet, ensuring that each power supply is plugged into a redundant PDU. Make sure to lock the plug at both ends with the plug retainer clips.	
7	Cable disk shelves to the storage appliance and to each other, as described in the appropriate disk shelf guide.	
8	Go to “Reassembling the system cabinet” on page 29.	

Setting up an empty system cabinet

Reassembling the system cabinet

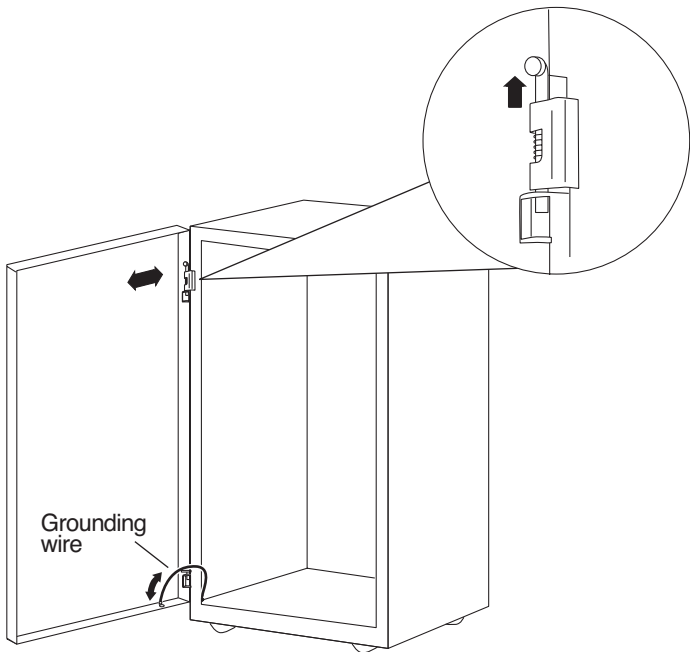
Reassembling the system cabinet

Reassembling the system cabinet consists of the following tasks:

- ◆ “Installing the system cabinet doors” on page 29
- ◆ “Installing the side panels” on page 30

Installing the system cabinet doors

After you install your equipment in the system cabinet, you must reinstall the front and rear doors. To install the front and rear doors, complete the following steps, using the diagram for reference.

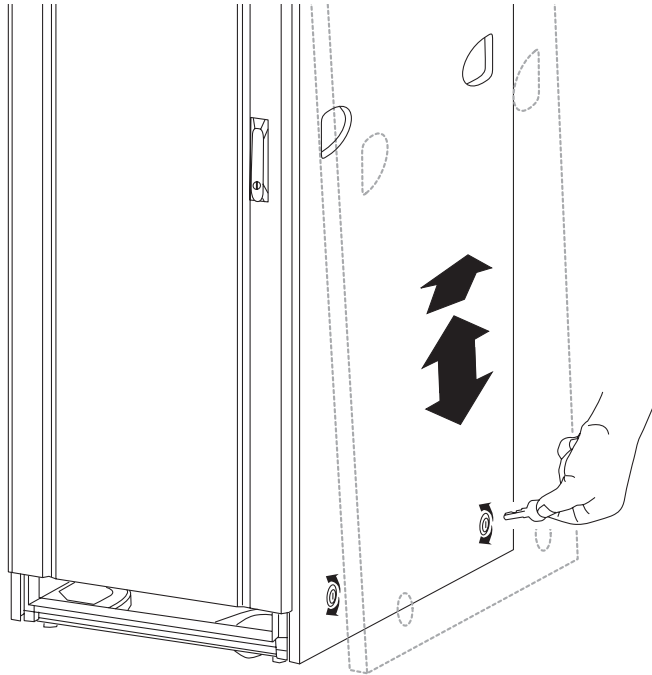


Step	Action
1	Align the bottom corner of the front door with the pin on the lower front hinge.
2	Lift the door over the bottom retaining pin and lower it into place.

Step	Action
3	Lift the locking latch at the top of the door, then tilt the door to align the hinge pin with the hinge knuckle, releasing the locking latch when the hinge pin is aligned with the hinge knuckle.
4	Reconnect the grounding cable to the bottom inside of the door.
5	Repeat Steps 1 through 4 for the rear door.
6	Go to “ Installing the side panels ” on page 30.

Installing the side panels

To install the side panels, complete the following steps, using the diagram for reference.



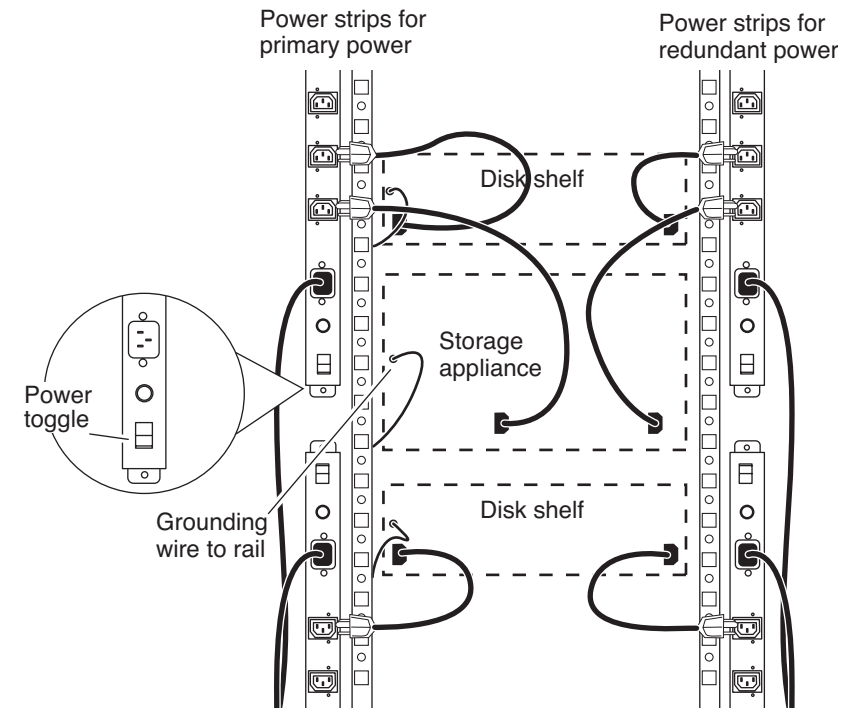
Step	Action
1	Lift the side panel and hang it over the lip at the top of the system cabinet frame.

Step	Action	
2	Gently push the bottom of the side panel and lock it in place with the key.	
3	Repeat Steps 1 through 2 for the other panel, if appropriate.	
4	If you are...	Then...
	Installing the interconnect and bolt-down kits	1. Install the interconnect kit, as described in “Powering on the system cabinet” on page 16. 2. Install the bolt-down kit as described in “Installing the bolt-down kit” on page 14. 3. Go to Step 6.
	Not installing the interconnect and bolt-down kits	Go to Step 6.
5	Go to “ Connecting to power and booting the equipment ” on page 32.	

Connecting to power and booting the equipment

Connecting the equipment to the PDUs

To connect the system components to the PDUs, complete the following steps, using the diagram for reference.



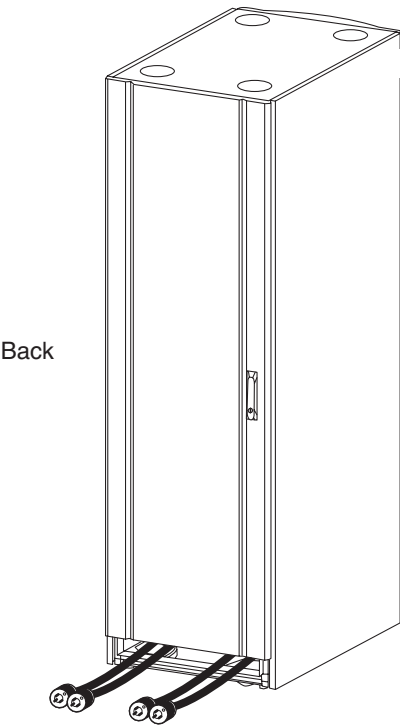
Step	Action
1	Connect the storage appliance power cables to the storage appliance, as described in the appropriate hardware guide.
2	Plug the left power supply of the storage appliance into the nearest PDU on the left side of the system cabinet.
3	Plug the right power supply of the storage appliance into the nearest PDU on the right side of the system cabinet.
4	Repeat Steps 1 through 3 for the disk shelves.

Connecting the system cabinet to a power source

To connect the system cabinet to a power source, complete the following steps, using the diagram for reference.

Note_____

The diagram uses the 20A PDUs. The 30A PDUs have only one power cable each that must be connected to the power source.



Step	Action
1	Make sure that all equipment is plugged into a PDU in the system cabinet.
2	Make sure that the PDU power cords are fed through the appropriate cable outlet. Use one of the following openings: ◆ The top of the system cabinet ◆ Between the rear door bottom and frame of the system cabinet ◆ Through the floor opening and under the system cabinet

Step	Action
3	Plug each PDU power cable into individual AC power sources that are on separate AC circuits.

Powering on and booting

To power on the system cabinet and boot the components, complete the following steps.

Step	Action
1	Open the rear door of the system cabinet and turn on each PDU, and then turn on the disk shelves, as described in the appropriate disk shelf guide.
2	Apply power to the storage appliance, as described in the appropriate hardware manual.
3	Configure your equipment, as described in the appropriate system administrator's guide.

About this chapter This chapter describes how to remove and install a PDU.

Removing and installing the PDUs

About PDU replacement

The system cabinet using 20A PDUs has four PDUs, two per side. The system cabinet using 30A PDUs has two PDU units, one per side. The PDUs are located at the back and inside of the system cabinet. Each PDU is field-replaceable and contains a toggle power switch and a circuit breaker. You can replace a PDU while the system cabinet is receiving power, without interrupting service to the components in the system cabinet.

Removing a PDU

To remove a PDU, complete the following steps.

Step	Action	
1	Ground yourself to the system cabinet, then unplug the target PDU from the AC wall power source.	
2	Remove the side panel, as described in “ Removing the side panels ” on page 21.	
3	If you have...	Then...
	20A PDUs	1. Flip the retainer clip off the shank of the PDU power plug, and remove the PDU power cable. 2. Go to Step 4 .
	30A PDUs	Go to Step 4 .
4	Unplug the components from the PDU by flipping the retainer clips and removing the plug from the PDU outlet.	

Step	Action
5	Remove the bottom screw from the PDU frame with a #3 Phillips screwdriver, then remove the top screw. Save these screws for the replacement PDU. Note_____ For 30A PDUs, you must remove four screws from the unit, two from each half of the PDU. _____
6	Go to “ Installing a PDU ” on page 37.

Installing a PDU

To install a PDU, complete the following steps.

Step	Action
1	Check the replacement PDU, making sure that the power switch is off.
2	Ground yourself to the system cabinet, then align the PDU screw holes with the holes in the system cabinet frame.
3	Insert a screw in the top hole of the PDU and tighten it enough to support the PDU.
4	Repeat Step 2 for the bottom PDU screw, then tighten both screws.
5	Install the side panel, as described in “ Installing the side panels ” on page 30.
6	Make sure that the PDU is off, then plug the system components into the new PDU and make sure that you lock the plugs in place with the retainer clips.

Step	Action	
7	If you have...	Then...
	20A PDUs	1. Plug the PDU power cable into the PDU and secure it with the power cable retaining bracket. Make sure that the screw is tight and the cable is secure. 2. Go to Step 8.
	30A PDUs	1. Replace the white CSA International label with the 30A CSA International label included with the PDU kit. The label is on the inside rear ceiling of the cabinet. 2. Go to Step 8.
8	Plug the PDU into an easily accessible AC outlet, then turn on the PDU.	
9	Close and lock the back of the system cabinet.	

About this appendix This appendix lists the contents of and shows a diagram of the spares kit, optional bolt-down kit, optional interconnect kit, and optional rail kit.

Topics in this appendix This appendix covers the following topics:

- ◆ “[Spares kit](#)” on page 40
- ◆ “[Bolt-down kit](#)” on page 41
- ◆ “[Interconnect kit](#)” on page 42
- ◆ “[Rail kit](#)” on page 43

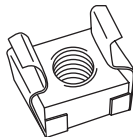
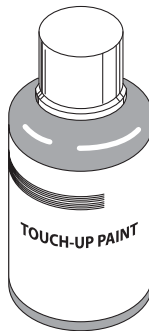
Spares kit

Spares kit contents

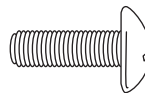
The following list specifies the contents of the spares kit, which is shipped with every system cabinet:

- ◆ Twenty 10-32 x .75 inch Phillips pilot point screws
- ◆ Twenty 10-32 clip nuts
- ◆ One clip nut insertion tool (not shown)
- ◆ Two master key copies
- ◆ One container of RAL 7015 charcoal gray touch-up paint

The following diagram shows the contents of the spares kit, without the clip nut insertion tool.



Clip nuts = 20



Screws = 20

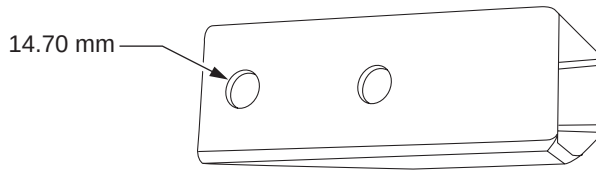
Bolt-down kit

Bolt-down kit contents

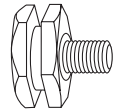
The following list specifies the contents of the bolt-down kit. This kit is an option, and can be ordered through your NetApp sales representative.

- ◆ Four bolt-down shoes
- ◆ Four mounting bolts

The following diagram shows the contents of the bolt-down kit.



Bolt-down shoes = 4



Mounting bolts = 4

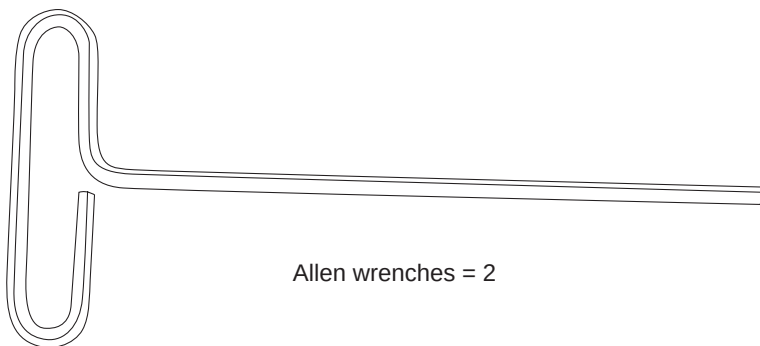
Interconnect kit

Interconnect kit contents

The following list specifies the contents of the interconnect kit, used to connect two or more system cabinets together. This kit is an option, and can be ordered through your NetApp sales representative.

- ◆ Two 4 mm Allen wrenches
- ◆ Four connecting sleeves
- ◆ Eight mounting screws

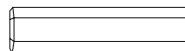
The following diagram shows the contents of the interconnect kit, without the second Allen wrench.



Allen wrenches = 2



Mounting screws = 8



Connecting sleeves = 4

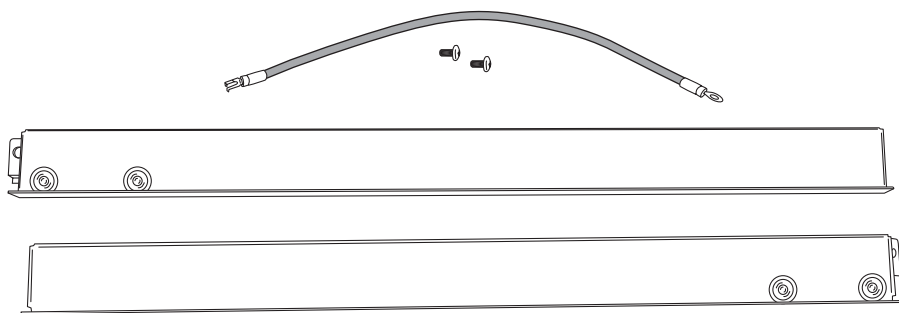
Rail kit

Rail kit contents

The following list specifies the contents of the rail kit. This kit is an option, and can be ordered through your NetApp sales representative.

- ◆ Two #2 Phillips screws
- ◆ One grounding cable
- ◆ One left and one right slide rail

The following diagram shows the contents of the rail kit.



About this appendix This appendix describes how to remove and replace the old-style side panels and how to convert an older system cabinet to accept the new-style side panels.

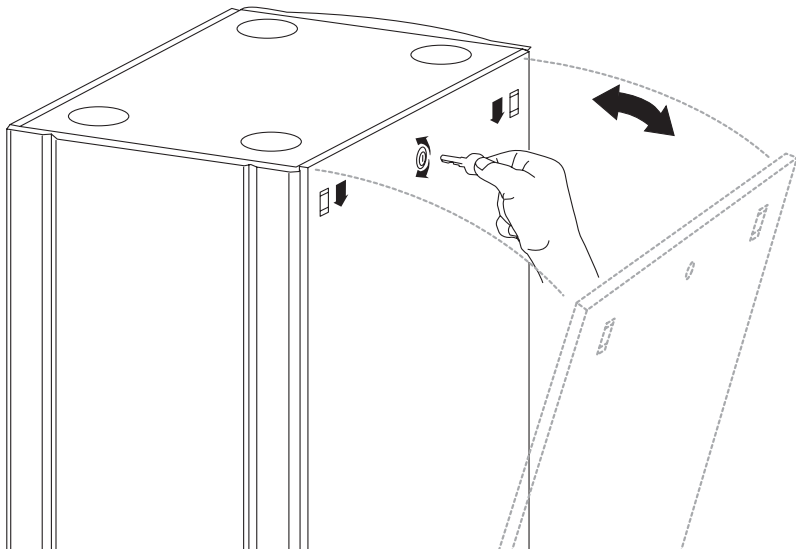
Topics in this index This appendix covers the following topics:

- ◆ [“Removing and replacing the old-style side panel”](#) on page 46
- ◆ [“Replacing the old-style side panel with the new-style side panel”](#) on page 48

Removing and replacing the old-style side panel

Removing the side panels

To remove the side panels, complete the following steps, using the diagram for reference.



Step	Action
1	Unlock the side panel, then press down on the two quick release tabs at the top of the side panel.
2	Lift the side panel until it clears the frame, then set the panel aside.

Installing the side panels

To install the side panels, complete the following steps.

Step	Action
1	Lift the side panel over the lip of the system cabinet frame, then place it in the slot behind the lip.
2	Push the top of the panel until it clicks into place, then insert the key into the lock at the top and lock it.
3	Repeat Steps 1 through 3 for the other panel, if appropriate.

Replacing the old-style side panel with the new-style side panel

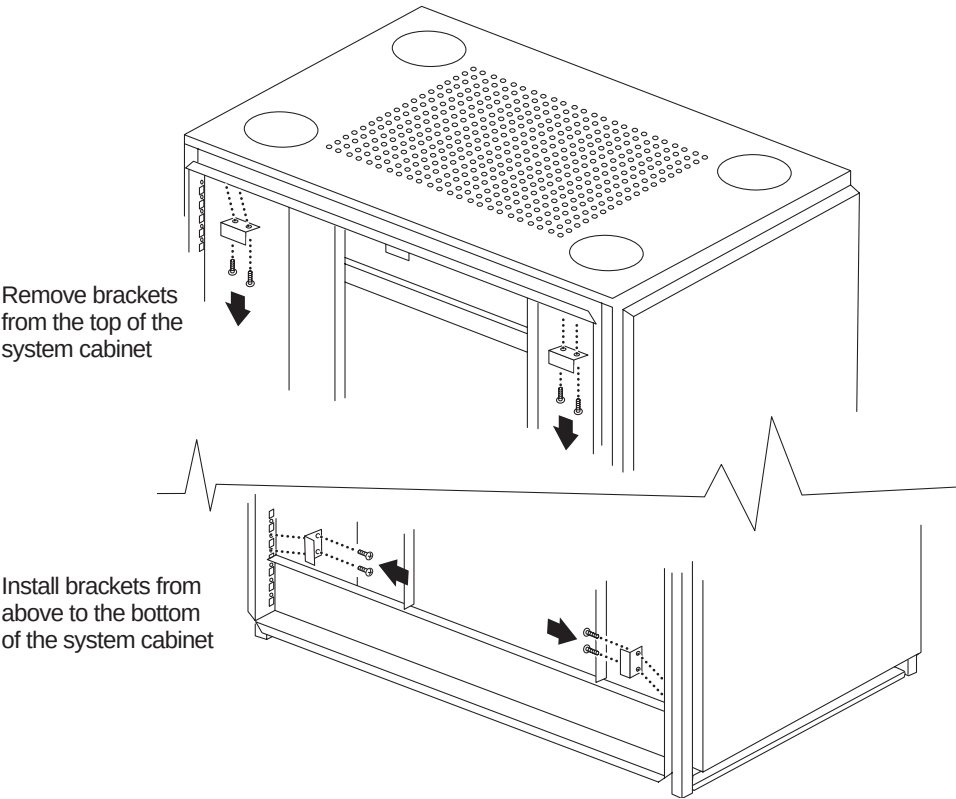
Removing the old-style side panels

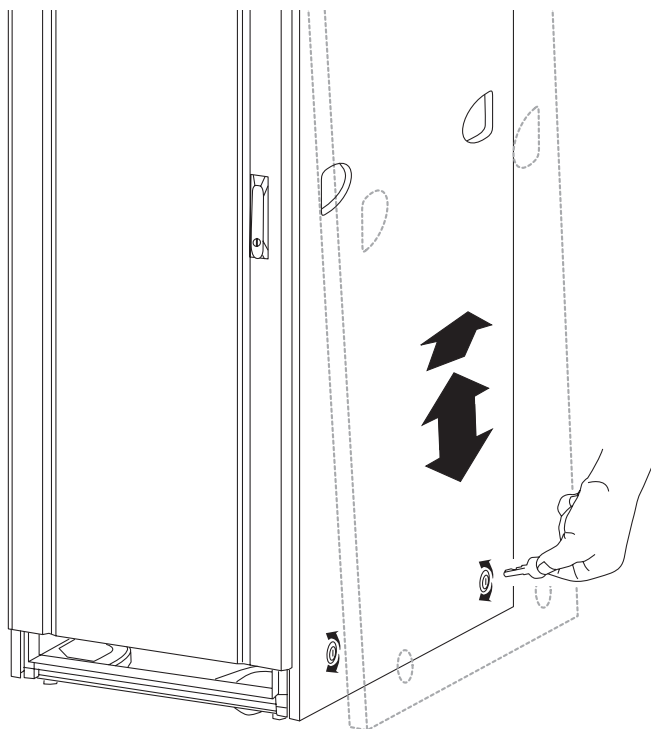
To remove the old-style side panel, complete the following steps, using the diagram on “[Removing the side panels](#)” on page 46 for reference.

Step	Action
1	Remove the old side panel, as described in “ Removing the side panels ” on page 46.
2	Go to “ Installing the new-style side panel ” on page 48.

Installing the new-style side panel

To install the new-style side panel, complete the following steps, using the diagrams for reference.





Step	Action
1	Remove the two outer L-shaped lock brackets from the top of the system cabinet frame.
2	Reinstall the L-shaped lock brackets on the bottom of the system cabinet frame.
3	Lift the side panel and hang it over the lip at the top of the system cabinet frame and lock it in place with the side panel key.
4	Repeat Steps 1 through 3 for the other side panel, if appropriate.

About this appendix This appendix lists the regulatory notices you need to be aware of when installing and operating your Network Appliance equipment.

Regulatory notices

FCC notices (U.S. only)

Network Appliance devices are designed for a CFR 47 (Code Federal Regulations) Part 15 Class A environment.

The FCC and Network Appliance guarantee the user's rights to operate this equipment only if the user complies with the following rules and regulations:

- ◆ Install and operate this equipment in accordance with the specifications and instructions in this guide.
- ◆ Modify this equipment only in the ways specified by Network Appliance.
- ◆ Use shielded cables with metallic RFI/EMI connector hoods to maintain compliance with applicable emissions standards.
- ◆ If the system has nine or more fibre channel disk shelves, install the system in two or three NetApp System Cabinets to maintain performance within Part 15 of CFR 47 regulations.

Compliance with Part 15 of CFR 47

This equipment has been tested and found compliant with Part 15 of the CFR 47 rules for Class A digital devices. These rules are designed to provide reasonable protection from interference to electronics equipment operated in a commercial environment.

Operation of this device is subject to the following two conditions:

- ◆ This device cannot cause harmful interference.
- ◆ This device must accept any interference received, including interference that may cause undesired operation.

Compliance with ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A conforme à la norme NMB-003 du Canada.

Compliance with EN regulations

Marking by the symbol  indicates compliance of this Network Appliance device to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Network Appliance device meets the technical standards listed in “Declaration of Conformity,” later in this appendix.

Caution

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Declaration of Conformity

Network Appliance, Inc.,
495 East Java Drive
Sunnyvale, California, 94089, U.S.A.,

declare under our sole responsibility that the products

Type of equipment	Description	Model number	Year of manufacture
42U System Cabinet	NetApp 42U System Cabinet	42U System Cabinet	2002

to which this declaration relates conform to the following standards:

- EN 60950:2000, Information Technology Equipment (Safety)
- EN 55022:1998, Emissions Requirements for Information Technology Equipment
- EN 50024:1998, Immunity Requirements for Information Technology Equipment
- EN 60825-1:1994 + A11, Safety of Laser/LED Equipment
- EN 61000-3-2:2000 Limits for Harmonic Current Emissions
- EN 61000-3-3:1995/A1:2001 Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems

following the provisions of the directives listed below:

- 73/23/EEC, Low Voltage Directive (Product Safety)
- 89/336/EEC, Electromagnetic Compatibility Directive

Part number: 210-00654

Feature Update Record

D

Feature update history

The following table lists and describes the history of changes made to this manual. When a change is implemented, it applies to the release in which it was implemented and all subsequent releases, unless otherwise specified.

Feature updates	Feature first implemented in	Feature release date
◆ Initial release of this manual.	N/A	September 2002
◆ Updates for new side panels.	N/A	February 2004
◆ Updated to add information for 30A PDUs.	N/A	November 2004

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