

IBM Storwize V3700

Quick Installation Guide



Note

Before using this information and the product it supports, read the general information in “Notices” on page 51, the information in the “Safety and environmental notices” on page ix, as well as the information in the *IBM Environmental Notices and User Guide*, which is provided on a DVD.

This edition applies to IBM Storwize V3700 and is valid until replaced by new editions.

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Safety and environmental notices

Review the safety notices, environmental notices, and electronic emission notices for IBM® Storwize® V3700 before you install and use the product.

To find the translated text for a caution or danger notice:

1. Look for the identification number at the end of each caution notice or each danger notice. In the following examples, the numbers (C001) and (D002) are the identification numbers.

CAUTION:

A caution notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. (C001)

DANGER

A danger notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. (D002)
--

2. Locate *IBM Systems Safety Notices* with the user publications that were provided with the Storwize V3700 hardware.
3. Find the matching identification number in the *IBM Systems Safety Notices*. Then review the topics concerning the safety notices to ensure that you are in compliance.
4. Optionally, read the multilingual safety instructions on the Storwize V3700 website. Go to www.ibm.com/storage/support/storwize/v3700 and click the documentation link.

Safety notices and labels

Review the safety notices and safety information labels before using this product.

To view a PDF file, you need Adobe Acrobat Reader. You can download it at no charge from the Adobe website:

www.adobe.com/support/downloads/main.html

IBM Systems Safety Notices

This publication contains the safety notices for the IBM Systems products in English and other languages. Anyone who plans, installs, operates, or services the system must be familiar with and understand the safety notices. Read the related safety notices before you begin work.

Note: The IBM Systems Safety Notices document is organized into two sections. The danger and caution notices without labels are organized alphabetically by language in the “Danger and caution notices by language” section. The danger and caution notices that are accompanied with a label are organized by label reference number in the “Labels” section.

The following notices and statements are used in IBM documents. They are listed in order of decreasing severity of potential hazards.

Danger notice definition

A special note that emphasize a situation that is potentially lethal or extremely hazardous to people.

Caution notice definition

A special note that emphasize a situation that is potentially hazardous to people because of some existing condition, or to a potentially dangerous situation that might develop because of some unsafe practice.

Note: In addition to these notices, labels might be attached to the product to warn of potential hazards.

Finding translated notices

Each safety notice contains an identification number. You can use this identification number to check the safety notice in each language.

To find the translated text for a caution or danger notice:

- 1. In the product documentation, look for the identification number at the end of each caution notice or each danger notice. In the following examples, the numbers (D002) and (C001) are the identification numbers.

DANGER

A danger notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. (D002)

CAUTION:

A caution notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. (C001)

- 2. Open the IBM Systems Safety Notices.
- 3. Under the language, find the matching identification number. Review the topics about the safety notices to ensure that you are in compliance.

Note: This product was designed, tested, and manufactured to comply with IEC 60950-1, and where required, to relevant national standards that are based on IEC 60950-1.

Caution notices for the Storwize V3700

Ensure that you understand the caution notices for Storwize V3700.

Use the reference numbers in parentheses at the end of each notice, such as (C003) for example, to find the matching translated notice in *IBM Systems Safety Notices*.

CAUTION:

Use safe practices when lifting.

		
18-32 kg (39.7-70.5 lbs)	32-55 kg (70.5-121.2 lbs)	≥ 55 kg (≥121.2 lbs)

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Danger notices for Storwize V3700

Ensure that you are familiar with the danger notices for Storwize V3700.

Use the reference numbers in parentheses at the end of each notice, such as (C003) for example, to find the matching translated notice in *IBM Systems Safety Notices*.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- **Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.**
- **Do not open or service any power supply assembly.**
- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.**
- **Connect any equipment that will be attached to this product to properly wired outlets.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.**

To disconnect:

- 1. Turn off everything (unless instructed otherwise).**
- 2. Remove the power cords from the outlets.**
- 3. Remove the signal cables from the connectors.**
- 4. Remove all cables from the devices.**

To connect:

- 1. Turn off everything (unless instructed otherwise).**
 - 2. Attach all cables to the devices.**
 - 3. Attach the signal cables to the connectors.**
 - 4. Attach the power cords to the outlets.**
 - 5. Turn on the devices.**
- **Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching.**

(D005)

DANGER

Heavy equipment—personal injury or equipment damage might result if mishandled. (D006)

Special caution and safety notices

This information describes special safety notices that apply to the Storwize V3700. These notices are in addition to the standard safety notices supplied and address specific issues relevant to the equipment provided.

General safety

When you service the Storwize V3700, follow general safety guidelines.

Use the following general rules to ensure safety to yourself and others:

- Observe good housekeeping in the area where the devices are kept during and after maintenance.
- Follow the guidelines when lifting any heavy object:
 1. Ensure that you can stand safely without slipping.
 2. Distribute the weight of the object equally between your feet.
 3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
 4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any objects that weigh more than 18 kg (40 lb) or objects that you think are too heavy for you.*
- Do not perform any action that causes a hazard or that makes the equipment unsafe.
- Before you start the device, ensure that other personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the unit.
- Keep your tool case away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a device. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconducting clip, approximately 8 cm (3 in.) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

Remember: Metal objects are good electrical conductors.

- Wear safety glasses when you are: hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly after you have finished servicing the unit.

Handling static-sensitive devices

Ensure that you understand how to handle devices that are sensitive to static electricity.

Attention: Static electricity can damage electronic devices and your system. To avoid damage, keep static-sensitive devices in their static-protective bags until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its antistatic bag, touch it to an unpainted metal part of the system unit for at least two seconds. (This action removes static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your Storwize V3700, without putting it down. If it is necessary to put the device down, place it onto its static-protective bag. (If your device is an adapter, place it component-side up.) Do not place the device onto the cover of the Storwize V3700 or onto a metal table.
- Take additional care when you handle devices during cold weather because heating reduces indoor humidity and increases static electricity.

Environmental notices

This publication contains all the required environmental notices for IBM Systems products in English and other languages.

The IBM Systems Environmental Notices and User Guide (ftp://public.dhe.ibm.com/systems/support/warranty/envnotices/environmental_notices_and_user_guide.pdf), Z125-5823 document includes statements on limitations, product information, product recycling and disposal, battery information, flat panel display, refrigeration, and water-cooling systems, external power supplies, and safety data sheets.

To view a PDF file, you need Adobe Reader. You can download it at no charge from the Adobe web site (get.adobe.com/reader/).

About this guide

This publication provides information that helps you install and initialize IBM Storwize V3700.

Who should use this guide

This guide is intended for installers of Storwize V3700.

Before configuring your system, ensure that you follow the procedures as listed. Be sure to gather IP addresses that you will need before you begin the installation.

Storwize V3700 library and related publications

Product manuals, other publications, and websites contain information that relates to Storwize V3700.

Storwize V3700 Information Center

The IBM Storwize V3700 Information Center contains all of the information that is required to install, configure, and manage the Storwize V3700. The information center is updated between Storwize V3700 product releases to provide the most current documentation. The information center is available at the following website:

pic.dhe.ibm.com/infocenter/storwize/v3700_ic/index.jsp

Storwize V3700 library

Unless otherwise noted, the publications in the Storwize V3700 library are available in Adobe portable document format (PDF) from the following website:

www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss

The following table lists websites where you can find help, services, and more information:

Table 1. IBM websites for help, services, and information

Website	Address
Directory of worldwide contacts	http://www.ibm.com/planetwide
Support for Storwize V3700 (2072)	www.ibm.com/storage/support/storwize/v3700
Support for IBM System Storage® and IBM TotalStorage products	www.ibm.com/storage/support/

Each of the PDF publications in the Table 2 on page xvi is also available in the information center by clicking the number in the “Order number” column:

Table 2. Storwize V3700 library

Title	Description	Order number
<i>IBM Storwize V3700 Quick Installation Guide</i>	This guide provides instructions for unpacking your shipping order and installing your system. The first of three chapters describes verifying your order, becoming familiar with the hardware components, and meeting environmental requirements. The second chapter describes installing the hardware and attaching data cables and power cords. The last chapter describes accessing the management GUI to initially configure your system.	GC27-4219
<i>IBM Systems Safety Notices</i>	This guide contains translated caution and danger statements. Each caution and danger statement in the Storwize V3700 documentation has a number that you can use to locate the corresponding statement in your language in the <i>IBM Systems Safety Notices</i> document.	G229-9054
<i>IBM Storwize V3700 Read First Flyer</i>	This document introduces the major components of the Storwize V3700 system and describes how to get started with the <i>IBM Storwize V3700 Quick Installation Guide</i> .	Part number: 00Y2619
<i>IBM Statement of Limited Warranty (2072)</i>	This multilingual document provides information about the IBM warranty for machine type 2072.	Part number: 00Y2617
<i>IBM License Agreement for Machine Code</i>	This multilingual guide contains the License Agreement for Machine Code for the Storwize V3700 product.	SC28-6872 (contains Z125-5468)

IBM documentation and related websites

Table 3 on page xvii lists websites that provide publications and other information about the Storwize V3700 or related products or technologies.

Table 3. IBM documentation and related websites

Website	Address
IBM Storage Management Console for VMware vCenter	The IBM Storage Host Software Solutions Information Center describes how to install, configure, and use the IBM Storage Management Console for VMware vCenter, which enables Storwize V3700 and other IBM storage systems to be integrated in VMware vCenter environments.
IBM Publications Center	www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss
IBM Redbooks® publications	www.redbooks.ibm.com/

Related accessibility information

To view a PDF file, you need Adobe Acrobat Reader, which can be downloaded from the Adobe website:

www.adobe.com/support/downloads/main.html

How to order IBM publications

The IBM Publications Center is a worldwide central repository for IBM product publications and marketing material.

The IBM Publications Center offers customized search functions to help you find the publications that you need. Some publications are available for you to view or download at no charge. You can also order publications. The publications center displays prices in your local currency. You can access the IBM Publications Center through the following website:

www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss

Related websites

The following websites provide information about Storwize V3700 or related products or technologies:

Type of information	Website
Storwize V3700 support	www.ibm.com/storage/support/storwize/v3700
Technical support for IBM storage products	www.ibm.com/storage/support/
IBM Electronic Support registration	www.ibm.com/support/electronicssupport

Sending your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

To submit any comments about this book or any other Storwize V3700 documentation:

- Go to the feedback form on the website for the Storwize V3700 Information Center at pic.dhe.ibm.com/infocenter/storwize/v3700_ic/index.jsp?topic=/com.ibm.storwize.v3700.doc/feedback_v3700.htm. You can use the form to enter and submit comments. You can browse to the topic in question and use the feedback link at the very bottom of the page to automatically identify the topic for which you have a comment.
- Send your comments by email to starpubs@us.ibm.com. Include the following information in your email:
 - Publication title
 - Publication form number
 - Page, table, or illustration numbers that you are commenting on
 - A detailed description of any information that should be changed

How to get information, help, and technical assistance

If you need help, service, technical assistance, or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you.

Information

IBM maintains pages on the web where you can get information about IBM products and fee services, product implementation and usage assistance, break and fix service support, and the latest technical information. For more information, refer to Table 4.

Table 4. IBM websites for help, services, and information

Website	Address
Directory of worldwide contacts	http://www.ibm.com/planetwide
Support for Storwize V3700 (2072)	www.ibm.com/storage/support/storwize/v3700
Support for IBM System Storage and IBM TotalStorage products	www.ibm.com/storage/support/

Note: Available services, telephone numbers, and web links are subject to change without notice.

Help and service

Before calling for support, be sure to have your IBM Customer Number available. If you are in the US or Canada, you can call 1 (800) IBM SERV for help and service. From other parts of the world, see <http://www.ibm.com/planetwide> for the number that you can call.

When calling from the US or Canada, choose the **storage** option. The agent decides where to route your call, to either storage software or storage hardware, depending on the nature of your problem.

If you call from somewhere other than the US or Canada, you must choose the **hardware** option when calling for assistance. When calling IBM for service regarding the product, follow these guidelines for the **hardware** option:

Hardware option

Provide the serial number and appropriate 4-digit machine type. For the Storwize V3700, the machine type is 2072.

In the US and Canada, hardware service and support can be extended to 24x7 on the same day. The base warranty is 9x5 on the next business day.

Getting help online

You can find information about products, solutions, partners, and support on the IBM website.

To find up-to-date information about products, services, and partners, visit the IBM website at www.ibm.com/storage/support/storwize/v3700.

Before you call

Make sure that you have taken steps to try to solve the problem yourself before you call.

Some suggestions for resolving the problem before calling IBM Support include:

- Check all cables to make sure that they are connected.
- Check all power switches to make sure that the system and optional devices are turned on.
- Use the troubleshooting information in your system documentation. The troubleshooting section of the Information Center contains procedures to help you diagnose problems.
- Go to the IBM Support website at www.ibm.com/storage/support/storwize/v3700 to check for technical information, hints, tips, and new device drivers or to submit a request for information.

Using the documentation

Information about your IBM storage system is available in the documentation that comes with the product.

That documentation includes printed documents, online documents, readme files, and help files in addition to the Information Center. See the troubleshooting information for diagnostic instructions. The troubleshooting procedure might require you to download updated device drivers or machine code. IBM maintains pages on the web where you can get the latest technical information and download device drivers and updates. To access these pages, go to www.ibm.com/storage/support/storwize/v3700 and follow the instructions. Also, some documents are available through the IBM Publications Center.

Sign up for the Support Line Offering

If you have questions about how to use the machine and how to configure the machine, sign up for the IBM Support Line offering to get a professional answer.

The maintenance supplied with the system provides support when there is a problem with a hardware component or a fault in the system machine code. At times, you might need expert advice about using a function provided by the system or about how to configure the system. Purchasing the IBM Support Line

offering gives you access to this professional advice. Taking this advice while deploying your system can save issues further down the line.

Contact your local IBM Sales or IBM Support for this offering availability and to purchase it, if available in your country.

What's new

New and updated information was included in this version of the book as a result of usability testing and other feedback. Read all of the steps no matter how familiar you are with the installation.

Chapter 1. Before you begin the installation

Before you can begin installing your system, you must unpack and verify your order and make other preparations.

The *Quick Installation Guide* contains a set of instructions to help you unpack and install your system. The guide is divided into three chapters.

1. The steps in Chapter 1, “Before you begin the installation” (the chapter you are now reading) involve verifying your order, becoming familiar with the hardware component terminology, and ensuring that you have met the environmental requirements.
2. The steps in Chapter 2, “Installing the hardware,” on page 11 involve installing the hardware and attaching the data cables and power cords.
3. Chapter 3, “Configuring the system,” on page 45 helps you create your configuration file and access the management GUI. The management GUI guides you through the initial configuration process.

Important information:

- This guide presumes that you have read the planning information regarding your physical environment that is available from the Storwize V3700 Information Center.
- Ensure that any cables that you are supplying are available for installation.

Installation scenarios

Depending on your order, this documentation steps you through setting up your system for the following scenarios:

- **Setting up a new system that consists of a control enclosure only.** In this case, you are not installing any expansion enclosures.
- **Setting up a new system that consists of a control enclosure and one or more expansion enclosures.**
- **Adding an expansion enclosure to an existing system.** In this case, you initially installed a control enclosure (and, optionally, one or more expansion enclosures). You want to add an expansion enclosure to your existing system. You do not need to power off the system. You can add an expansion enclosure while the system is operational.

Table 5. Steps for different installation scenarios

New system (control enclosure only)	New system (control enclosure and one or more expansion enclosures)	Adding expansion enclosures to an existing system
“Reviewing your packing slip” on page 4	“Reviewing your packing slip” on page 4	“Reviewing your packing slip” on page 4
“Identifying the hardware components” on page 5	“Identifying the hardware components” on page 5	“Verifying environmental requirements” on page 8
“Verifying environmental requirements” on page 8	“Verifying environmental requirements” on page 8	“Reviewing enclosure location guidelines” on page 9

Table 5. Steps for different installation scenarios (continued)

New system (control enclosure only)	New system (control enclosure and one or more expansion enclosures)	Adding expansion enclosures to an existing system
"Reviewing enclosure location guidelines" on page 9	"Reviewing enclosure location guidelines" on page 9	"Installing the support rails" on page 11 ¹
"Installing the support rails" on page 11	"Installing the support rails" on page 11	"Installing the enclosures" on page 16 ¹
"Installing the enclosures" on page 16	"Installing the enclosures" on page 16	"Connecting SAS cables to expansion enclosures" on page 34 ¹
"Connecting Ethernet cables for system management" on page 37	"Connecting SAS cables to expansion enclosures" on page 34	"Powering on the system" on page 42 ¹
"Connecting Fibre Channel cables to an 8 Gbps Fibre Channel 4-port host interface card" on page 39	"Connecting Ethernet cables for system management" on page 37	"Adding an expansion enclosure to an existing system" on page 50
"Powering on the system" on page 42	"Connecting Ethernet cables for system management" on page 37	
Chapter 3, "Configuring the system," on page 45	"Powering on the system" on page 42	
	Chapter 3, "Configuring the system," on page 45	
¹ Complete these steps for each expansion enclosure that you add.		

Be familiar with the following information

- See "Caution notices for the Storwize V3700" on page x and "Danger notices for Storwize V3700" on page x for a summary of the situations that can be potentially hazardous to you. Before installing, read and understand the following caution and danger statements.
- Use safe practices when lifting. The fully populated enclosure weighs about 26 kg (57 lbs). At least two people are required to lift and install the enclosure into the rack or to remove an enclosure from the rack.

CAUTION:

Use safe practices when lifting.

		
18-32 kg (39.7-70.5 lbs)	32-55 kg (70.5-121.2 lbs)	≥ 55 kg (≥121.2 lbs)

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Also keep in mind that a rack full of equipment is extremely heavy.

DANGER: Heavy equipment—personal injury or equipment damage might result if mishandled. (D006)

- The following general precautions should be observed even though the power on steps differ slightly from the directions that you will follow for this product:

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the signal cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching.

(D005)

Tools needed

A flat-blade screwdriver is the only tool needed for the system installation.

Reviewing your packing slip

After you open your shipment, you must verify the contents against the packing slip.

In each box, locate the packing slip. Verify that the items listed in the packing slip match what is in the box, and that any optional items that you ordered are included in the list. Your shipment might contain additional items depending on the order.

Note: If you purchased your equipment through a reseller, some of the options might be preinstalled. Contact your supplier for details.

- ___ • Control enclosure or expansion enclosure:
 - ___ – **LFF** enclosures have 12 Large Form Factor slots for 3.5-inch drives.
 - ___ – **SFF** enclosures have 24 Small Form Factor slots for 2.5-inch drives.

Table 6. Storwize V3700 model numbers

Machine type/model	Feature code	Part number	Description
2072-12C	ACAN	2072L2C	IBM Storwize V3700 LFF Dual Control Enclosure
2072-12E	ACAS	2072LEU	IBM Storwize V3700 LFF Expansion Enclosure
2072-24C	ACBN	2072S2C	IBM Storwize V3700 SFF Dual Control Enclosure
2072-24E	ACBS	2072SEU	IBM Storwize V3700 SFF Expansion Enclosure

- ___ • Rack-mounting hardware kit, including:
 - ___ – Two rails (right and left assembly)
 - ___ – Two rail springs
 - ___ – Two sets of rail mounting screws
 - ___ – Two sets of alternative rail mounting pins (large and small) for non-IBM racks
- ___ • Two power cords for connection to rack mounted power distribution units
- ___ • Drive bay blanking plates (installed in the enclosure)
- ___ • Publications package (includes a USB flash drive that is used to initialize the system)

Options applicable to control enclosures:

- ___ • Cache Memory Upgrade
- ___ • 4-port 8 Gbps Fibre Channel host interface card with 2 small form-factor pluggable (SFP) transceivers installed
- ___ • 2 extra Fibre Channel SFP transceivers
- ___ • Fibre Channel cables
- ___ • SAS cables
- ___ • 4-port 1 Gbps iSCSI host interface card
- ___ • 2-port 10 Gbps iSCSI / FCoE host interface card
- ___ • Drives
- ___ • Power cords for connection to wall sockets

Options applicable to expansion enclosures:

- • Expansion enclosure attachment cables
- • Drives
- • Power cords for connection to wall sockets

Identifying the hardware components

The following graphics and descriptions identify the various hardware components and port locations for the control enclosure and expansion enclosure.

Control enclosure components

Figure 1 shows the rear view of a control enclosure and identifies the location of the power supply units and node canisters.

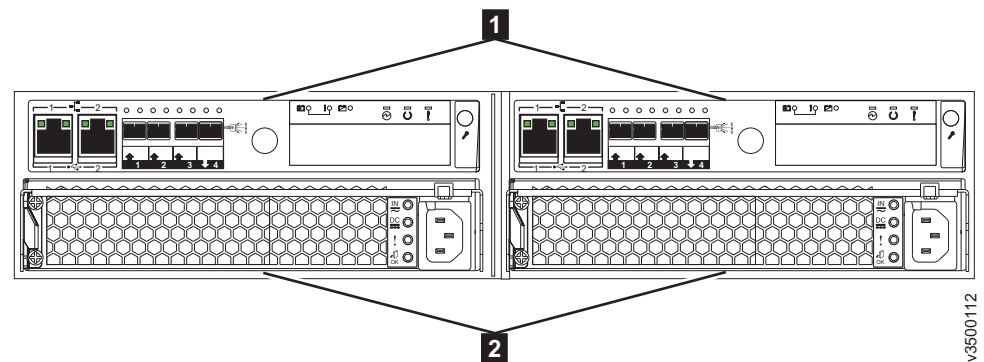


Figure 1. Rear view of a Storwize V3700 control enclosure

- **1** Node canisters
- **2** Power supply units

Note: Figure 1 shows the node canisters in their initial configuration, with no host interface card options installed.

Figure 2 shows the rear view of a Storwize V3700 control enclosure and identifies the location of the ports.

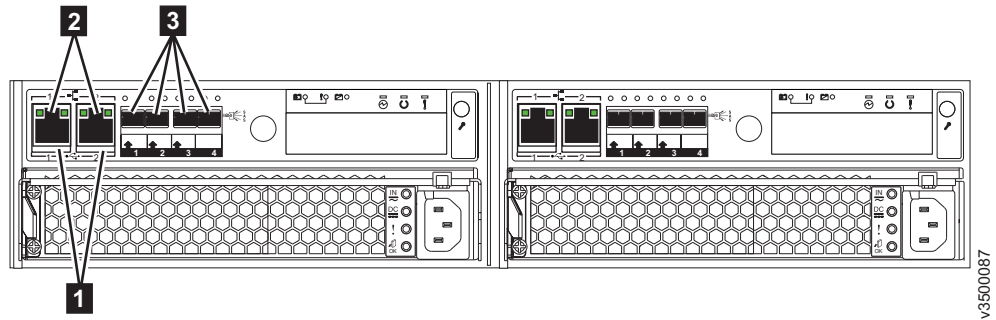


Figure 2. Data ports in the rear of the control enclosure

- **1** USB ports. Each canister has two USB ports. One port is used during installation.
- **2** Ethernet ports. Each canister has two 1 Gbps Ethernet ports.
 - Port 1** Must be connected for system management. Can optionally be used for iSCSI host connectivity.
 - Port 2** Optional. Can be used for iSCSI host connectivity or to provide an alternative (redundant) management address.
- **3** Serial-attached SCSI (SAS) ports. Each canister has four SAS ports. Ports 1 to 3 are optionally used for connecting to host systems. Port 4 is not used.

Expansion enclosure components

Figure 3 shows the rear view of an expansion enclosure and identifies the location of power supply units and expansion canisters.

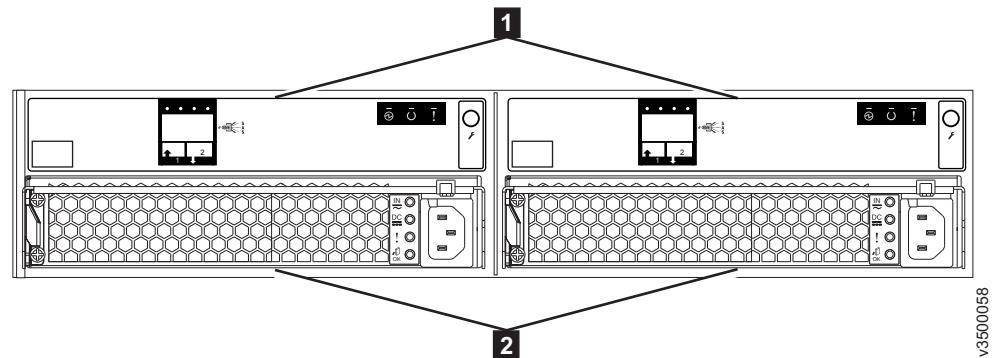


Figure 3. Rear view of a Storwize V3700 expansion enclosure

- **1** Expansion canisters
- **2** Power supply units

Figure 4 shows the rear view of an expansion canister and identifies the SAS port locations.

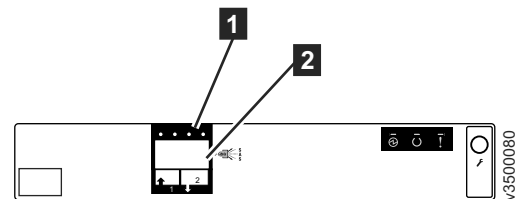


Figure 4. SAS ports and LEDs in rear of expansion canister

- **1** LEDs
- **2** SAS ports

Each canister has two SAS ports that are numbered 1 on the left and 2 on the right. Port 1 is always used. Port 2 is used only if this is not the last enclosure in the chain.

Miscellaneous hardware

The USB flash drive (Figure 5) is packaged with the publications and contains the initialization tool for completing the initial system configuration.

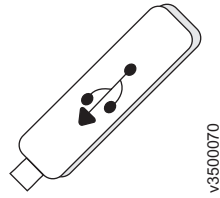


Figure 5. USB flash drive

Verifying environmental requirements

The environmental and electrical requirements for the physical site must be met to ensure that your system works reliably.

This procedure includes verifying that adequate space in a suitable rack is available and that requirements for power and environmental conditions are met. This documentation assumes that you have completed the physical planning for the environment of your system.

If you have not done the environmental planning for your system, see the *Storwize V3700 physical installation planning* topic in the Storwize V3700 Information Center.

Reviewing enclosure location guidelines

Before installing the enclosures, you must be familiar with these enclosure location guidelines.

Installing a control enclosure only

If you are installing a control enclosure only, follow these guidelines.

Position the enclosure in the rack so that you can easily view it and access it for servicing. Ensure that you locate the enclosure low enough for the rack to remain stable and provide a way for two or more people to install and remove the enclosure.

Installing a control enclosure and one or more expansion enclosures

If you are installing a control enclosure plus one or more expansion enclosures, follow these guidelines.

- Each Storwize V3700 enclosure to be installed requires 2U of rack space.
- Each assembled enclosure weighs more than 18kg. There must be sufficient space at the front of the rack for two persons to carry the enclosure safely.
- Install all enclosures that constitute one system in contiguous positions in a rack, with control enclosure at the top.
- Each control enclosure supports connection to up to four expansion enclosures. If this system installation has less than four expansion enclosures, reserve space directly below the system to allow future expansion.
- If a rack is to be only partially filled, install the enclosures low enough for the rack to remain stable and enable easy access to the enclosures for servicing.

Adding an expansion enclosure to an existing system

If you are adding an expansion enclosure to an existing system, follow these guidelines.

- You do not need to power off the system. You can add an expansion enclosure while the system is operational.
- Add the first expansion enclosure directly below the control enclosure.
- Add the second expansion enclosure directly below the first, and so on.

Chapter 2. Installing the hardware

After verifying that you have all of the hardware components that you require, you can install them.

You have completed the initial steps of verifying the shipping contents and becoming familiar with the hardware components. You have verified that the power and environmental requirements are met and have planned the location of the enclosures. You are now ready to begin installing the hardware components and connecting the data cables and power cords.

Installing the support rails

Before installing an enclosure, you must first install support rails.

Procedure

To install the support rails, complete the following steps.

1. Locate the rack mounting rails and screws (Figure 6). The rail assembly consists of two rails that must be installed in the rack cabinet.

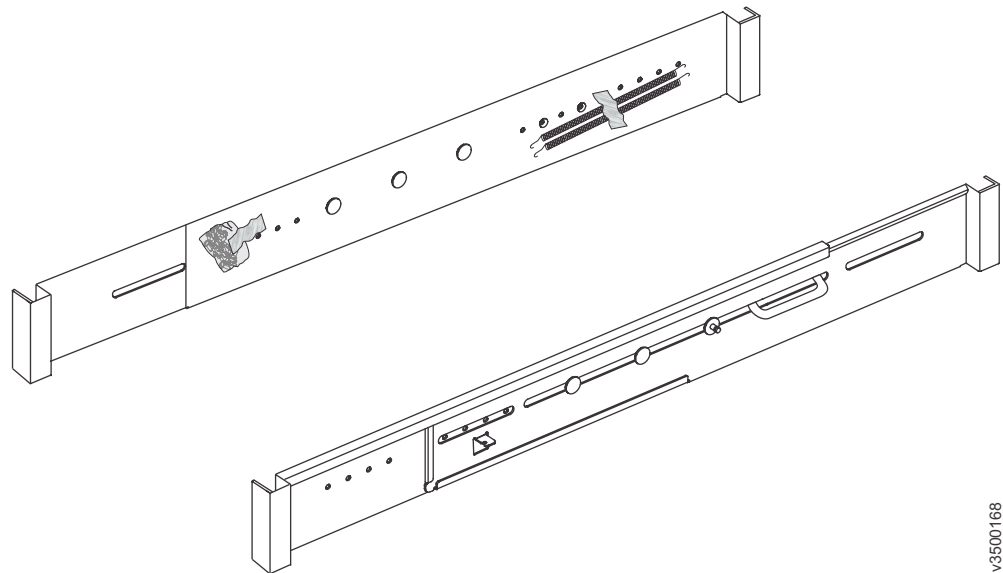
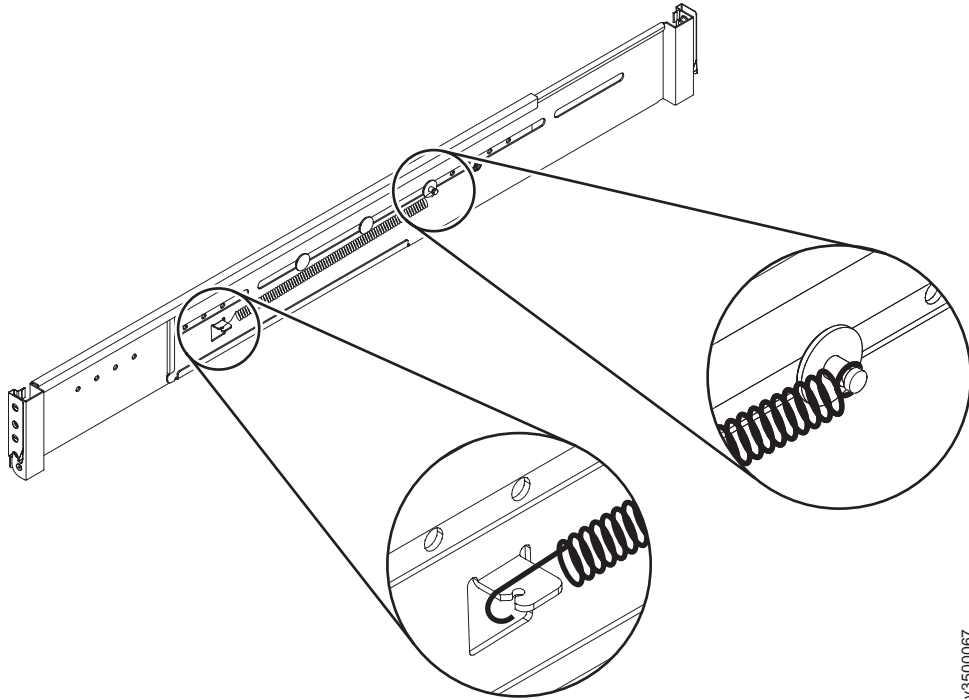


Figure 6. Rack mounting rails and screws

2. Remove the springs that are taped to one of the rails.

3. Attach a spring to the outside of each rail.
 - a. Attach the circle end of the spring around the stud on the rail (see Figure 7).
 - b. Pulling on the spring, attach the hook end of the spring to the tab on the rail.



v3500067

Figure 7. Installing the rail spring

4. Working at the front of the rack cabinet, identify the two standard rack units (2U) of space in the rack into which you want to install the support rails. Figure 8 shows two rack units with the front mounting holes identified.

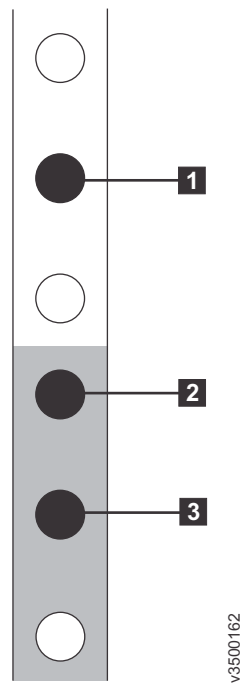


Figure 8. Hole locations in the front of the rack

- **1** Upper rail mounting bracket pin
- **2** Lower rail mounting bracket pin
- **3** Rack mounting screw hole

Note: Each rail comes with two medium bracket pins in the front bracket and two medium bracket pins in the rear bracket. The medium bracket pins are for installation in a 19-inch IBM rack cabinet. If you are installing the storage enclosure in a non-IBM rack cabinet, you may need to replace the set of medium bracket pins on the front and rear of the rail with either the small or large bracket pins that are included in the rail kit.

5. At each end of the rail, grasp the tab **1** and pull *firmly* to open the hinge bracket (see Figure 9).

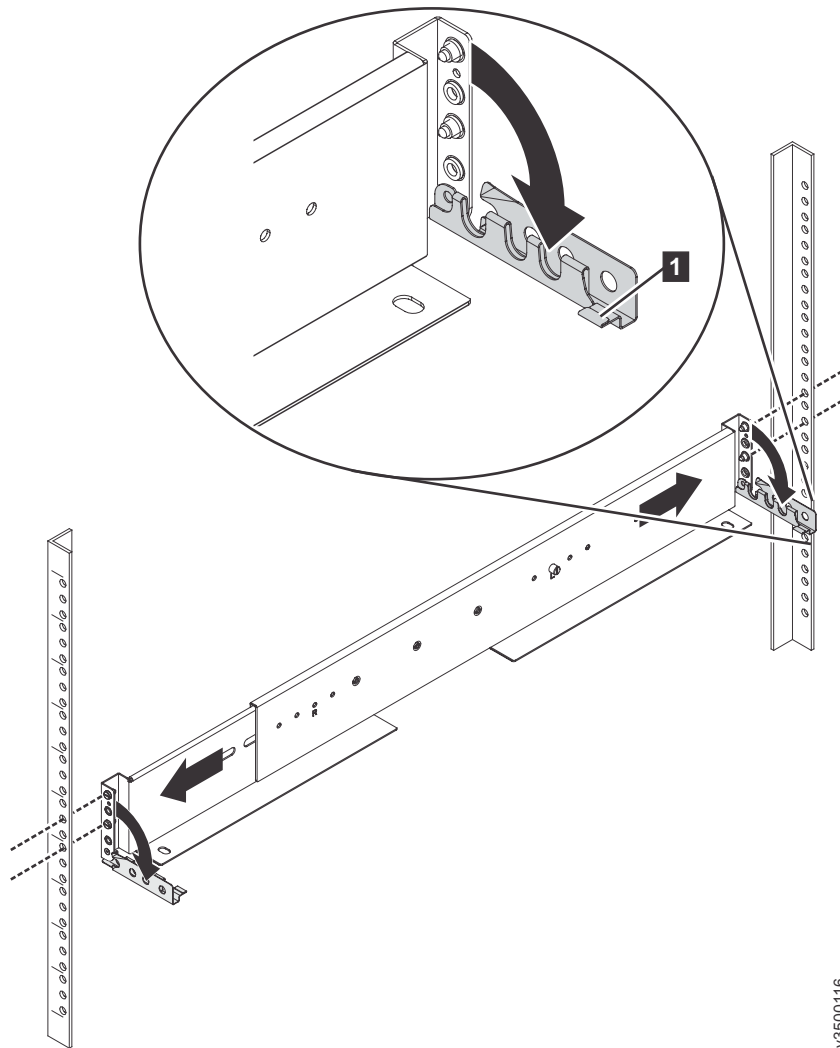


Figure 9. Opening the hinge brackets

6. Align the holes in the rail bracket with the holes on the front and rear rack cabinet flanges. Ensure that the rails are aligned on the inside of the rack cabinet.

7. On the rear of the rail, press the two bracket pins into the holes in the rack flanges and close the rear hinge bracket to secure the rail to the rack cabinet flange (see Figure 10).

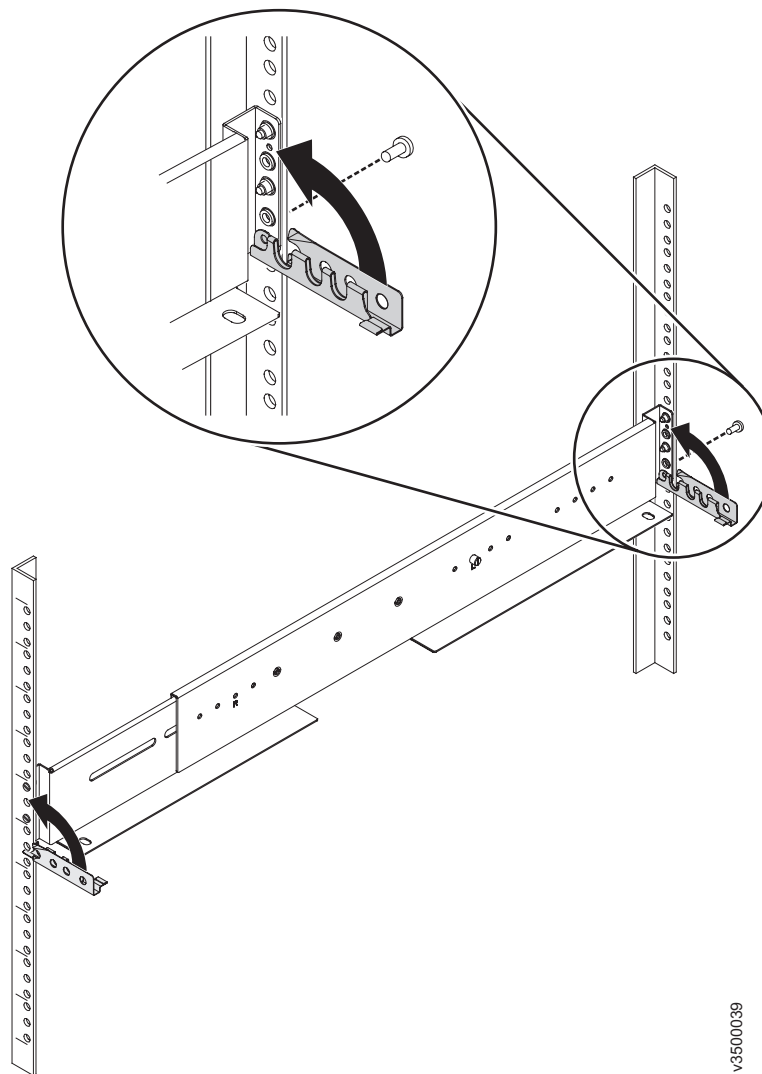


Figure 10. Closing hinge brackets and installing rear screw

8. On the front of the rail, press the two bracket pins into the holes in the rack flanges and close the front hinge bracket to secure the rail to the rack cabinet flange (see Figure 10).
9. Secure the rear of the rail to the rear rack flange with an M5 screw (see Figure 10).
10. Repeat the steps to secure the opposite rail to the rack cabinet.
11. Repeat the procedure to install rails for each additional enclosure.

Installing the enclosures

Following your enclosure location plan, install the control enclosure (and, optionally, one or more expansion enclosures).

About this task

CAUTION:

- To lift and install the enclosure into the rack requires at least two people.
- Load the rack from the bottom up to ensure rack stability. Empty the rack from the top down.

Procedure

To install an enclosure, complete the following steps.

1. Align the enclosure with the front of the rack cabinet.
2. Carefully slide the enclosure into the rack along the rails until the enclosure is fully inserted (see Figure 11).

Note: The rails are not designed to hold an enclosure that is partially inserted. The enclosure must always be in a fully inserted position.

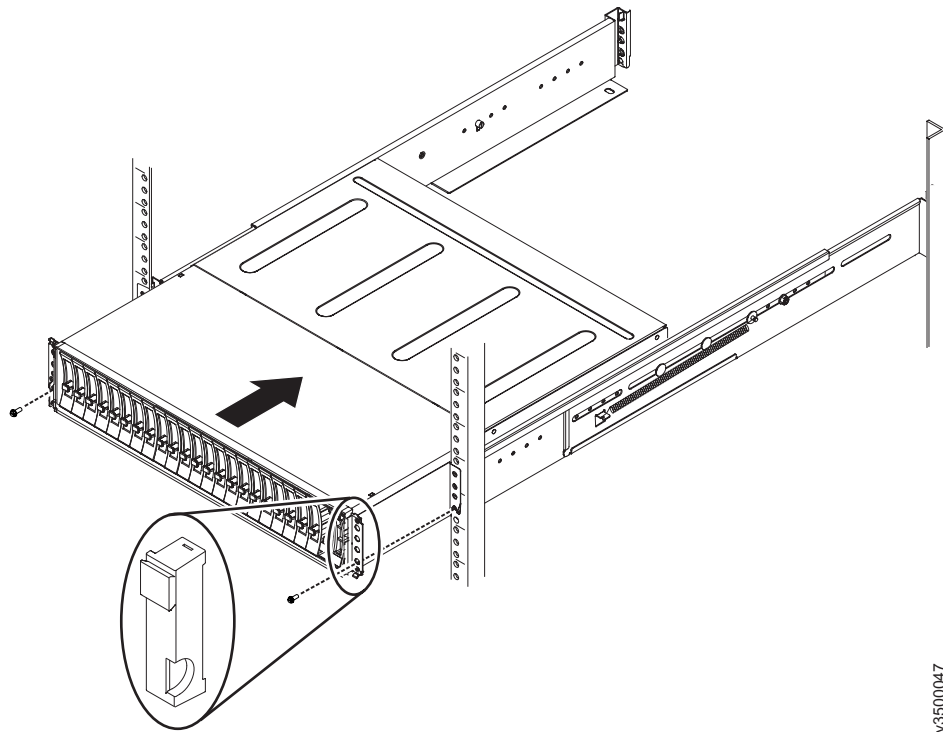


Figure 11. Inserting the enclosure

3. On either side of the drive assemblies, remove the enclosure end caps by grasping the handle and pulling the bottom of the end cap free, then clearing the tab on the top of the enclosure.
4. Secure the enclosure with a screw in the rack mounting screw hole.

5. Reinstall the left and right end caps as shown in Figure 11 on page 16. The left end cap has indicator windows that align with the status LEDs (light-emitting diodes) on the edge of the enclosure.
 - a. Ensure that the serial number of the end cap matches the serial number on the rear of the enclosure.
 - b. Fit the slot on the top of the end cap over the tab on the chassis flange.
 - c. Rotate the end cap down until it snaps into place.
 - d. Ensure that the inside surface of the end cap is flush with the chassis.

Installing options in the control enclosure

If you have purchased host interface cards or cache memory upgrades for your control enclosure and those options were not preinstalled for you, you must open each node canister and install the options.

Note: You must install the same options in all node canisters.

First, open the canister as described in “Opening the node canister” on page 18. Then refer to the procedure for the option you are installing:

- “Installing an 8 Gbps Fibre Channel 4-port host interface card” on page 20
- “Installing a 10 Gbps iSCSI-FCoE 2-port host interface card” on page 22
- “Installing a 1 Gbps iSCSI 4-port host interface card” on page 25
- “Installing a SAS 4-port host interface card” on page 26
- “Installing an 8 GB cache memory upgrade” on page 28

Finally, close the canister and install it in the control enclosure (see “Closing the node canister” on page 30).

Note: Disk drives can also be installed in the control enclosure, but that procedure does not involve opening any node canisters. See “Installing disk drives” on page 32 for details.

Opening the node canister

Before you can install options in a node canister, you must gain access by opening the canister cover.

Procedure

To open the canister, complete the following steps.

1. If the canister is already installed in the enclosure, remove it as shown in Figure 12.
 - a. Unlatch the release levers and pull them open. The canister moves out of the slot approximately 0.6cm (0.25 inch).
 - b. Slide the canister out of the enclosure.

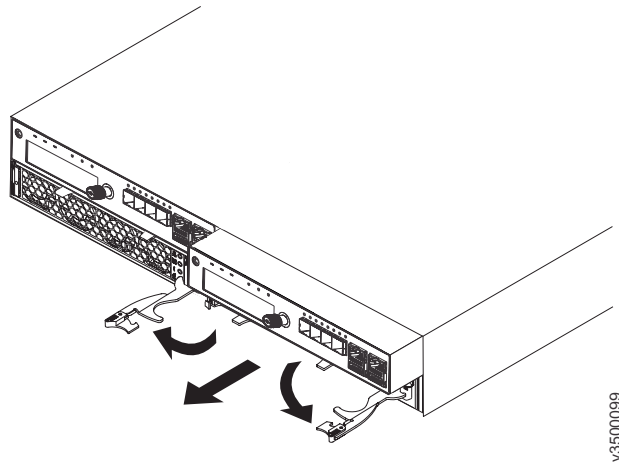


Figure 12. Removing a node canister

2. Turn the canister over and open the cover as shown in Figure 13.
 - a. Press the recessed blue touch points on the cover.
 - b. Slide the cover away from the thumbscrew end of the canister.

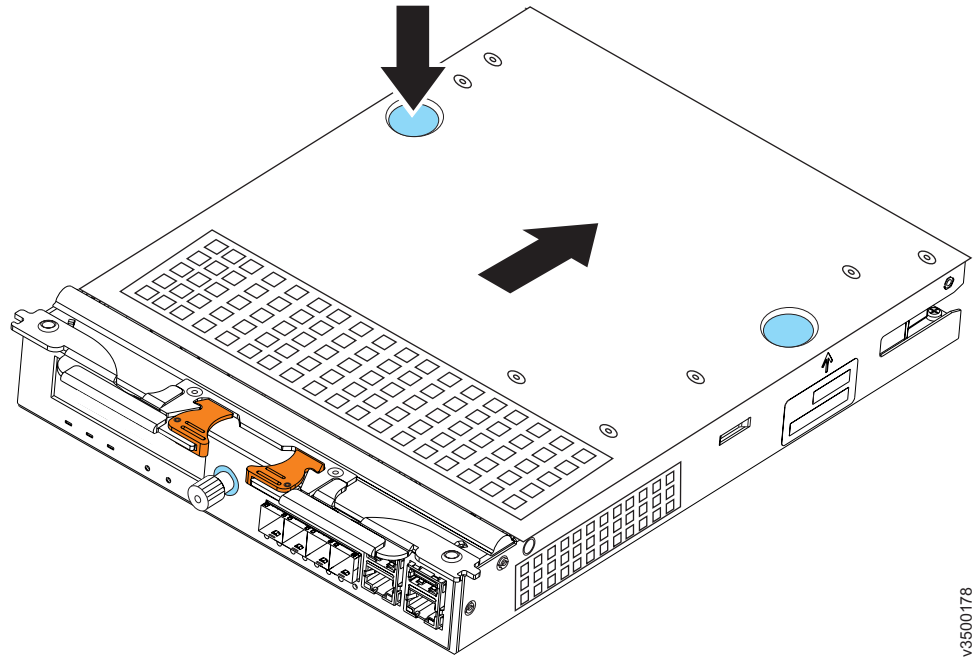


Figure 13. Removing the canister cover

v3500178

Installing an 8 Gbps Fibre Channel 4-port host interface card

If you purchased an FC ACHK 8 Gbps Fibre Channel 4-port host interface card that was not preinstalled for you, you must install it in the node canister.

Before you begin

The 8 Gbps Fibre Channel 4-port host interface card is installed in the node canisters in the control enclosure. If your control enclosure has two node canisters, you must install the same options in *both* canisters. Do not start installation until you have *two* of the 8 Gbps Fibre Channel 4-port host interface card options.

About this task

Note: The host interface card has four ports, but only two small form-factor pluggable (SFP) transceivers are installed.

Procedure

To install the host interface card, complete the following steps.

1. Remove the SFP transceivers from the host interface card (Figure 14). To remove an SFP transceiver, swing the release handle open and use it to pull the transceiver out of the port.

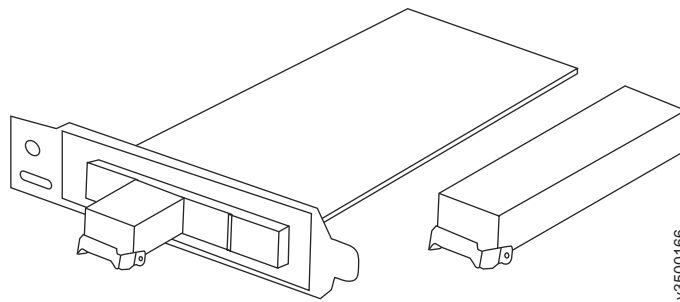


Figure 14. Host interface card and SFP transceivers

2. Loosen the retaining thumbscrew **1** as shown in Figure 15.

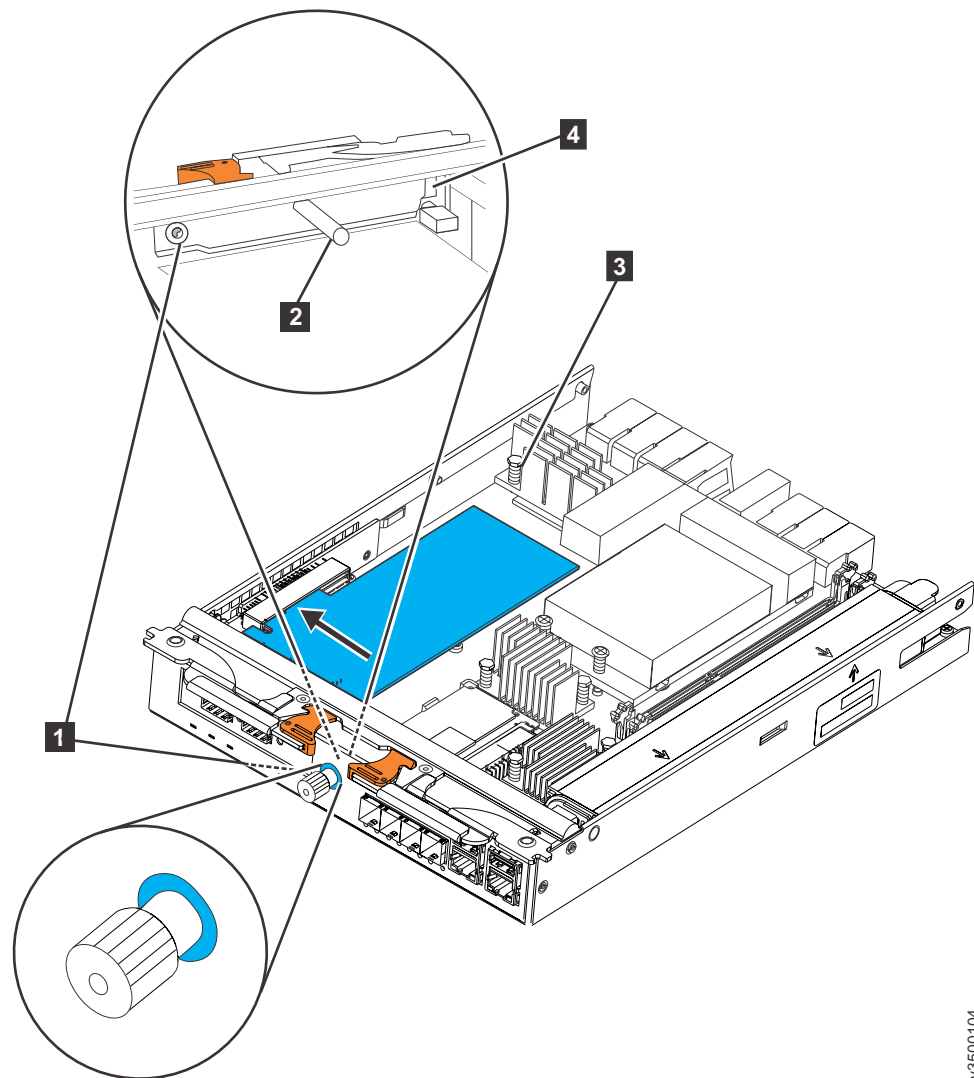


Figure 15. Installing 8 Gbps Fibre Channel 4-port host interface card

- **1** Retaining thumbscrew
 - **2** Filler handle
 - **3** Host interface card
 - **4** Catch slot
3. From inside the canister, grasp the filler handle **2** and slide the filler plate toward the thumbscrew to disengage the plate from the catch slot **4**.
 4. Remove the filler plate.
 5. Insert the host interface card **3** into the canister as shown in Figure 15
 6. Align the mounting bracket of the host interface card with the inside of the host interface card aperture at the thumbscrew end of the canister, ensuring that the tab at the end of the faceplate is aligned with the catch slot **4**.
 7. Align the connecting edge of the host interface card with the slot in the host interface card connector inside the canister.
 8. Apply pressure to the opposite edge of the host interface card to push the card into the host interface card connector.

9. Check that the host interface card is installed squarely in its slot and tighten the retaining thumbscrew **1**.
10. Reinstall the SFP transceivers. To install a transceiver, push it fully into the port and close the release handle.
11. If you purchased the additional 2-transceiver option, install the extra SFP transceivers in the remaining ports.

Installing a 10 Gbps iSCSI-FCoE 2-port host interface card

If you purchased an FC ACHM 10 Gbps iSCSI-FCoE 2-port host interface card that was not pre-installed for you, you must install it in the node canister.

Before you begin

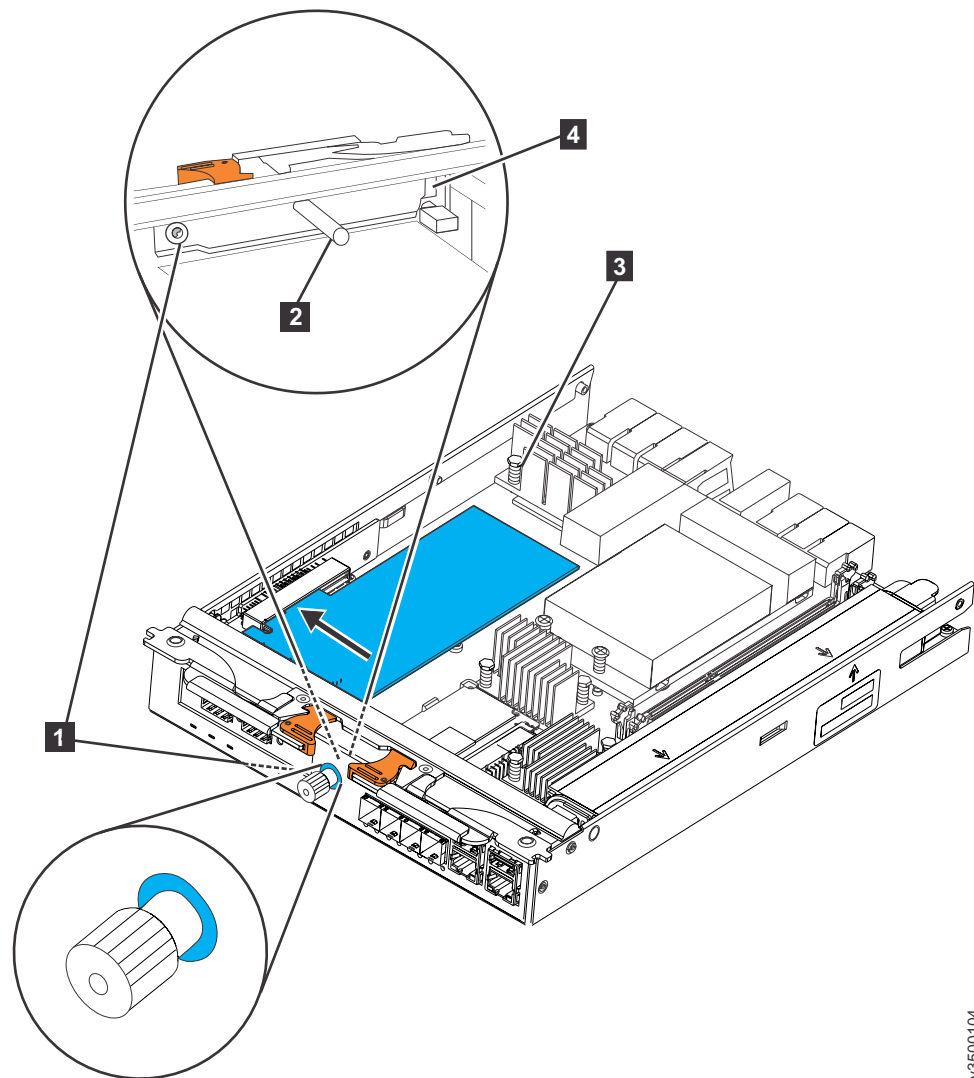
The 10 Gbps iSCSI-FCoE 2-port host interface card is installed in the node canisters in the control enclosure. If your control enclosure has two node canisters, you must install the same options in *both* canisters. Do not start installation until you have *two* of the 10 Gbps iSCSI-FCoE 2-port host interface card options.

Procedure

To install the host interface card, complete the following steps.

1. Remove each SFP transceiver from the host interface card. To remove an SFP transceiver, swing the release handle open and use it to pull the transceiver out of the port.

2. Loosen the retaining thumbscrew **1** as shown in Figure 16.



v3500104

Figure 16. Installing 10 Gbps iSCSI-FCoE 2 port host interface card

- **1** Retaining thumbscrew
- **2** Filler handle
- **3** Host interface card
- **4** Catch slot

3. From inside the canister, grasp the filler handle **2** and slide the filler plate toward the center of the canister to disengage the plate from the catch slot.
4. Remove the filler plate.
5. Insert the host interface card **3** into the canister as shown in Figure 16.
6. Align the mounting bracket of the host interface card with the inside of the host interface card aperture (adjacent to the thumbscrew), ensuring that the tab at the end of the faceplate is aligned with the catch slot.
7. Align the connecting edge of the host interface card with the slot in the host interface card connector inside the canister.
8. Apply pressure to the opposite edge of the host interface card to push the card into the host interface card connector.

9. Check that the host interface card is installed squarely in its slot and tighten the retaining thumbscrew **1**.
10. Reinstall the SFP transceivers that were removed in step 1 on page 22. To install a transceiver, push it fully into the port and close the release handle.

Note: Return the SFP transceivers to the same ports they were removed from.

Installing a 1 Gbps iSCSI 4-port host interface card

If you purchased an FC ACHL 1 Gbps iSCSI 4-port host interface card that was not pre-installed for you, you must install it in the node canister.

Before you begin

The 1 Gbps iSCSI 4-port host interface card is installed in the node canisters in the control enclosure. If your control enclosure has two node canisters, you must install the same options in *both* canisters. Do not start installation until you have *two* of the 1 Gbps iSCSI 4-port host interface card options.

Procedure

To install the host interface card, complete the following steps.

1. Loosen the retaining thumbscrew **1** as shown in Figure 17.

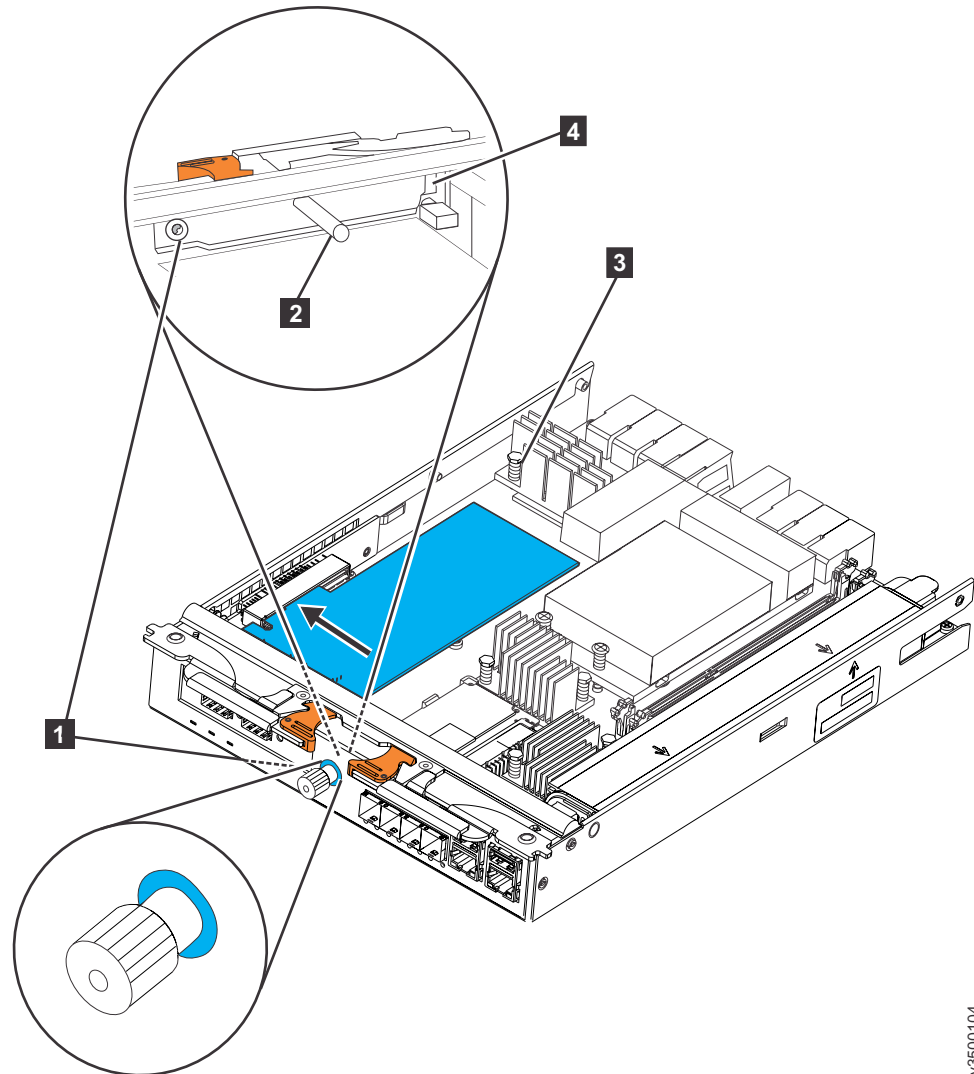


Figure 17. Installing 1 Gbps iSCSI 4-port host interface card

- **1** Retaining thumbscrew

- **2** Filler handle
 - **3** Host interface card
 - **4** Catch slot
2. From inside the canister, grasp the filler handle **2** and slide the filler plate toward the center of the canister to disengage the plate from the catch slot.
 3. Remove the filler plate.
 4. Insert the host interface card **3** into the canister as shown in Figure 17 on page 25.
 5. Align the mounting bracket of the host interface card with the inside of the host interface card aperture at the rear of the canister, ensuring that the tab at the end of the faceplate is aligned with the catch slot.
 6. Align the connecting edge of the host interface card with the slot in the host interface card connector inside the canister.
 7. Apply pressure to the opposite edge of the host interface card to push the card into the host interface card connector.
 8. Check that the host interface card is installed squarely in its slot and tighten the retaining thumbscrew **1**.

Installing a SAS 4-port host interface card

If you purchased an FC ACHJ SAS 4-port host interface card that was not pre-installed for you, you must install it in the node canister.

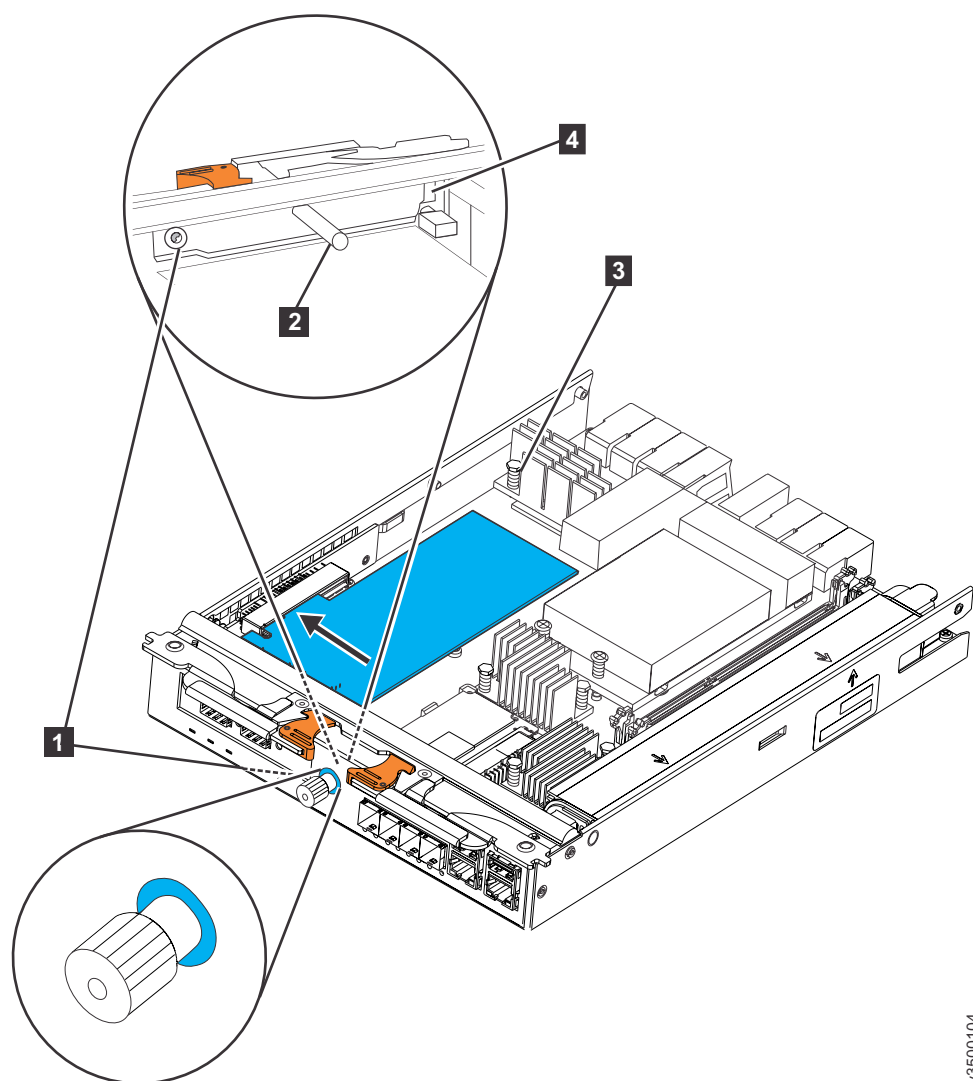
Before you begin

The SAS 4-port host interface card is installed in the node canisters in the control enclosure. If your control enclosure has two node canisters, you must install the same options in *both* canisters. Do not start installation until you have *two* of the SAS 4-port host interface card options.

Procedure

To install the host interface card, complete the following steps.

1. Loosen the retaining thumbscrew **1** as shown in Figure 18 on page 27.



v3500104

Figure 18. Installing SAS 4-port host interface card

- **1** Retaining thumbscrew
 - **2** Filler handle
 - **3** Host interface card
 - **4** Catch slot
2. From inside the canister, grasp the filler handle **2** and slide the filler plate toward the center of the canister to disengage the plate from the catch slot.
 3. Remove the filler plate.
 4. Insert the host interface card **3** into the canister as shown in Figure 18.
 5. Align the mounting bracket of the host interface card with the inside of the host interface card aperture at the rear of the canister, ensuring that the tab at the end of the faceplate is aligned with the catch slot.
 6. Align the connecting edge of the host interface card with the slot in the host interface card connector inside the canister.
 7. Apply pressure to the opposite edge of the host interface card to push the card into the host interface card connector.
 8. Check that the host interface card is installed squarely in its slot and tighten the retaining thumbscrew **1**.

Installing an 8 GB cache memory upgrade

If you purchased an FC ACHB 8 GB Cache Upgrade option that was not pre-installed for you, you must install it.

Before you begin

The 8 GB Cache Upgrade option is installed in the node canisters in the control enclosure. If your control enclosure has two node canisters, you must install the same options in *both* canisters. Do not start installation until you have *two* of the Cache Upgrade options.

About this task

The Cache Upgrade option consists of a 4 GB memory module. When added to a node canister, it increases the total memory in the canister to 8 GB.

The memory module is inserted into memory slot 2, located between the existing memory module and the battery (Figure 19).

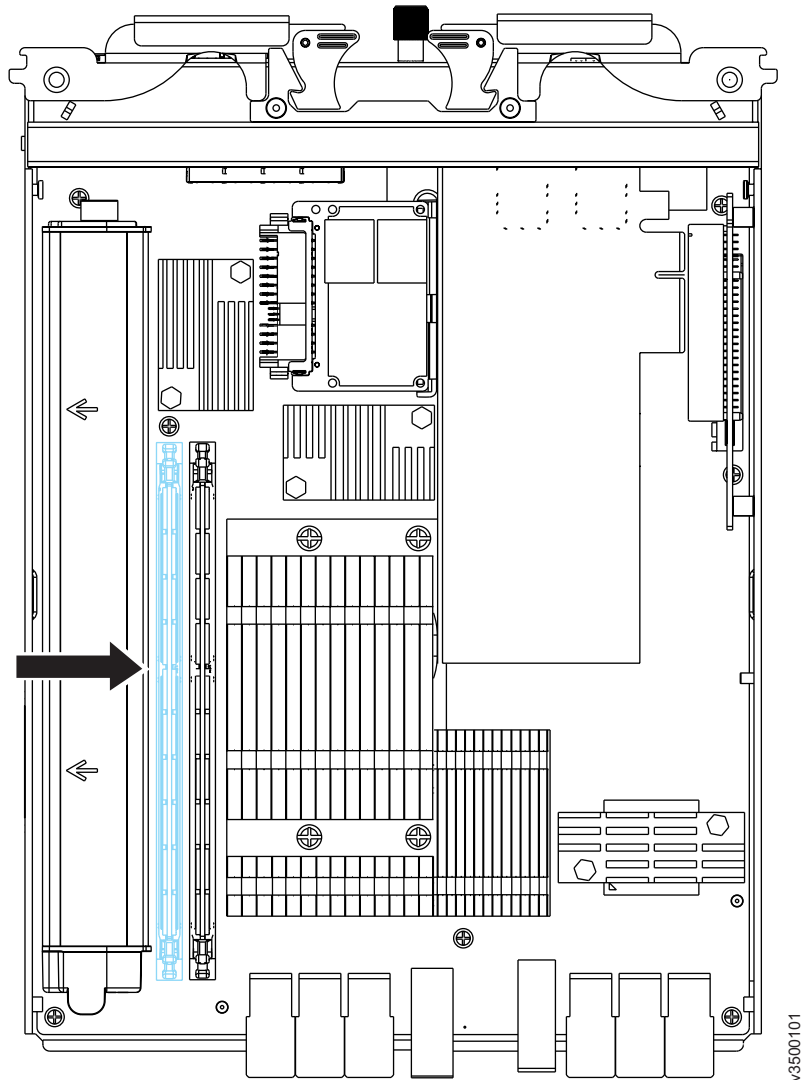


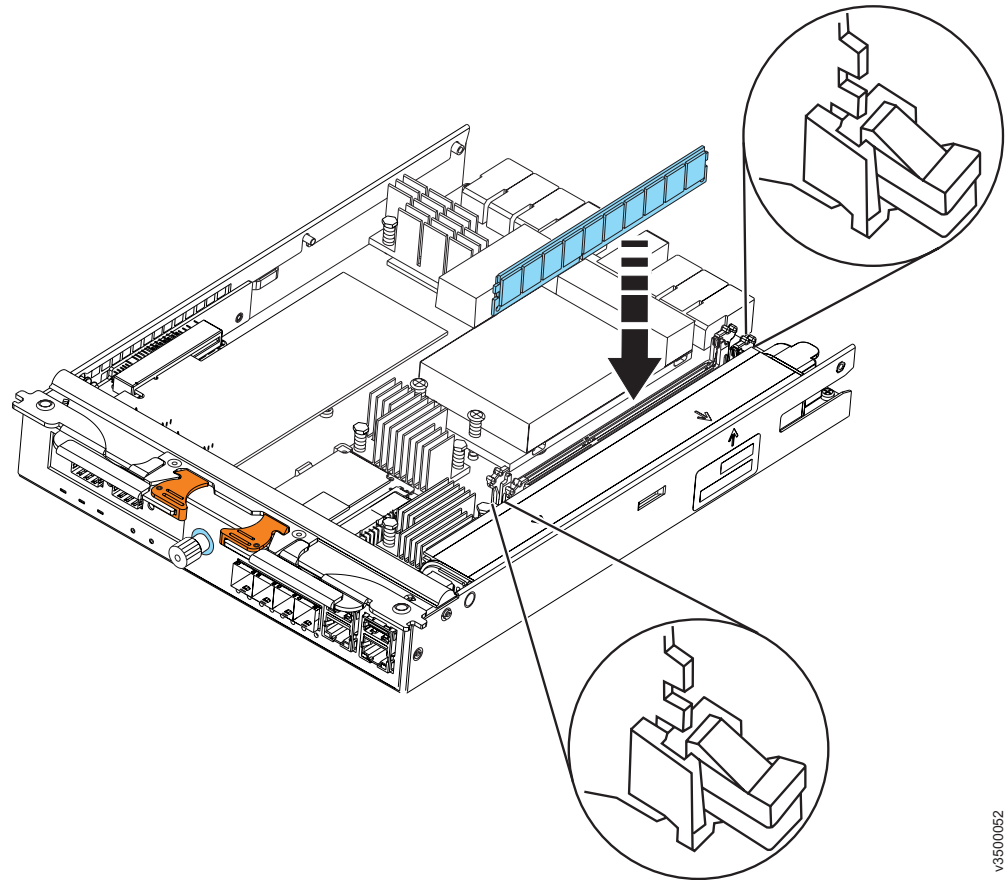
Figure 19. Where to install the cache memory upgrade

Procedure

To install the memory module option, complete the following steps.

1. Open the retaining clip on each end of the memory module connector as shown in Figure 20.

Attention: To avoid breaking the retaining clips or damaging the memory module connectors, open and close the clips gently.



v3500052

Figure 20. Installing memory module option

2. Touch the static-protective package that contains the memory module to any unpainted metal surface on the outside of the canister.
3. Remove the memory module from the package.
4. Turn the memory module so that the keys align correctly with the connector.
5. Insert the memory module into the connector by aligning the edges of the module with the slots at the ends of the connector (see Figure 20).
6. Firmly press the memory module straight down into the connector by applying pressure on both ends of the module simultaneously. The retaining clips snap into the locked position when the module is firmly seated in the connector.

Note: If you can see a gap between the module and the retaining clips, the module has not been correctly inserted. Open the retaining clips, remove the module, and then reinsert it.

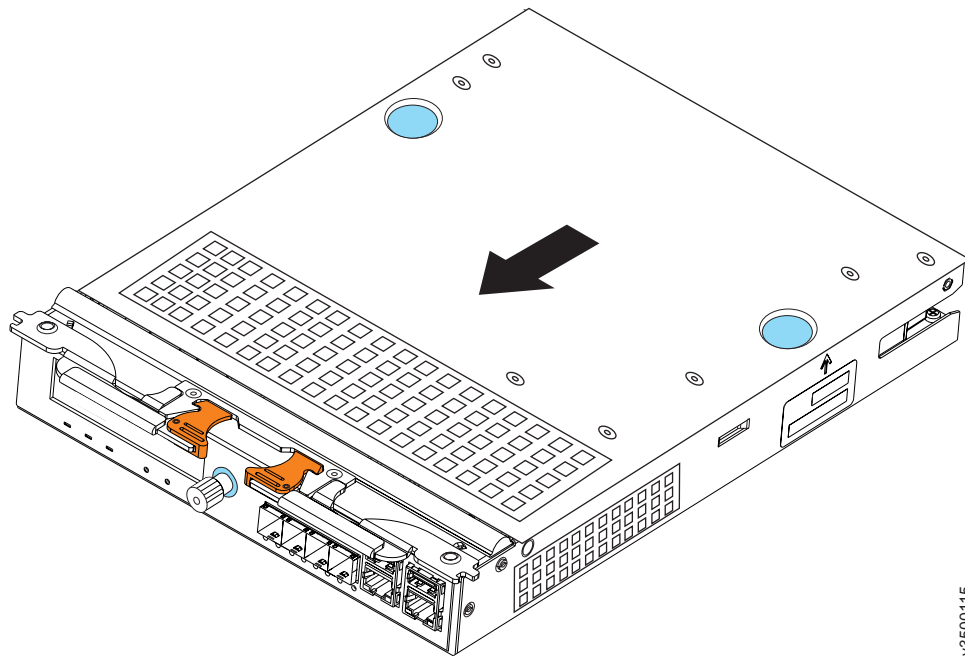
Closing the node canister

After installing options in a node canister, you must close the canister cover and install the canister in the control enclosure.

Procedure

To close the canister, complete the following steps.

1. Reinstall the cover as shown in Figure 21.
 - a. Align the four hook slots on the cover with the pins on the canister.
 - b. Slide the cover toward the latch and release levers until it locks into place.



v3500115

Figure 21. Reinstalling the canister cover

2. Turn the canister over and install it in the control enclosure as shown in Figure 22.
 - a. With the latch and release levers fully extended, slide the canister into the enclosure until the levers begin to move inwards.
 - b. Simultaneously close both latch and release levers.

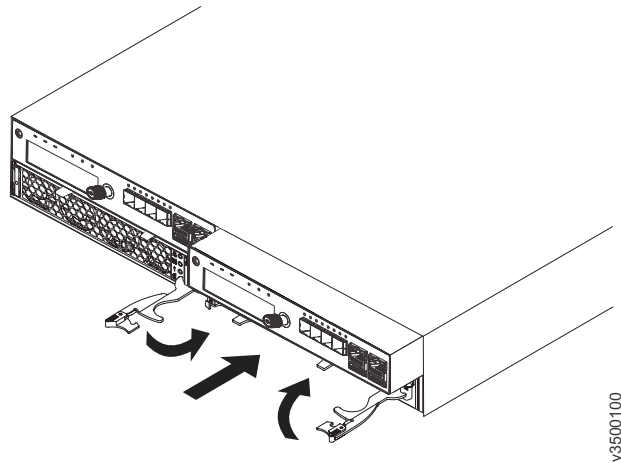


Figure 22. Installing a node canister

Installing disk drives

If you purchased disk drives that were not preinstalled for you, you must install them.

About this task

Drives can be installed in the control enclosure or any of the expansion enclosures. The installation procedure is the same for either enclosure type.

Install all the drives you require before configuring the system. This allows the best provisioning of drives into arrays.

Procedure

To install a drive, complete the following steps.

1. Remove the filler panel from the slot into which you want to install the drive (as shown in Figure 23).
 - a. Grip the front of the filler panel **1** and pull firmly to remove it from the drive slot.
 - b. Save the filler panel for future use.

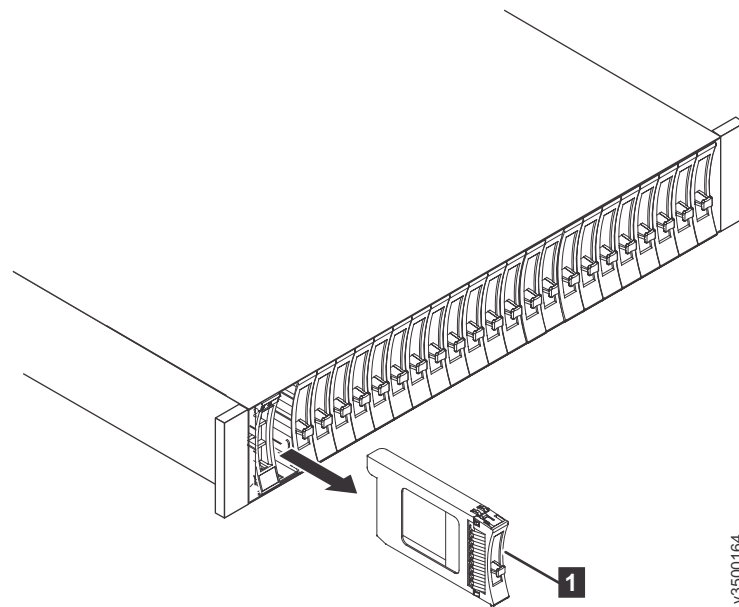


Figure 23. Removing a filler panel

- **1** Filler panel
2. Touch the static-protective package that contains the drive to any unpainted surface on the outside of the enclosure.
 3. Remove the drive from the package.

4. Install the drive in the empty slot as shown in Figure 24.
 - a. Ensure that the drive-tray handle is in the open (unlocked) position.
 - b. Align the drive assembly with the guide rails in the slot.
 - c. Gently push the drive assembly into the slot until the drive stops.
 - d. Rotate the drive handle to the closed (locked) position.

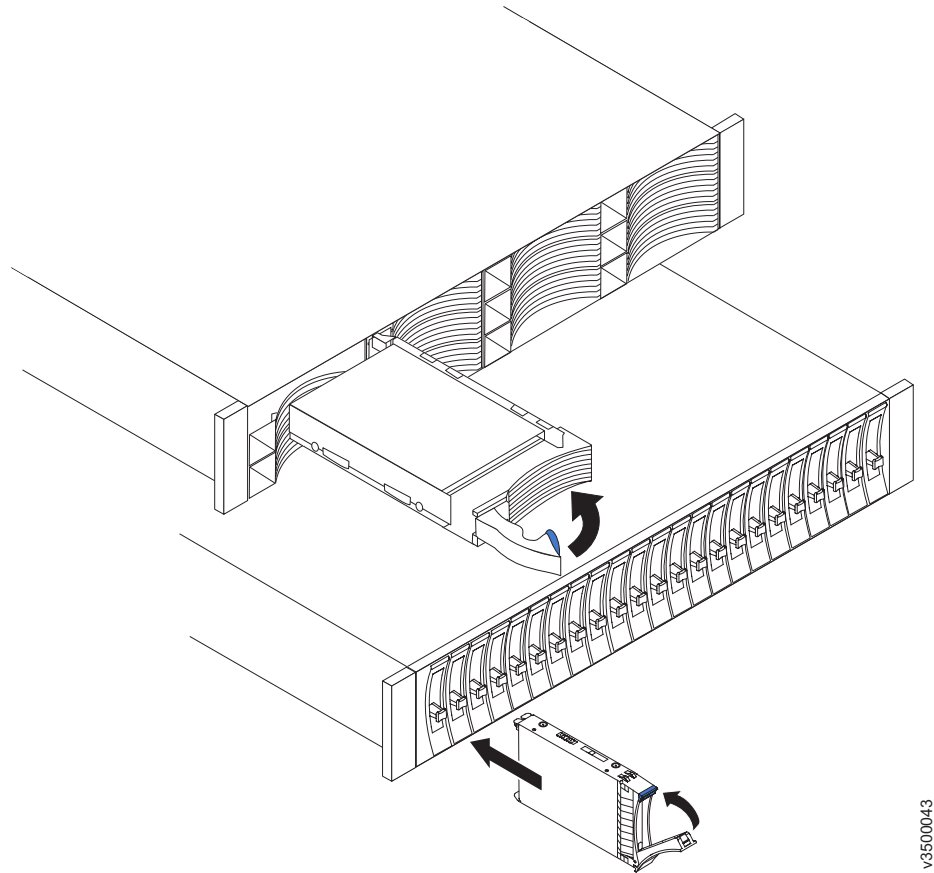


Figure 24. Installing a drive

v3500043

Connecting SAS cables to expansion enclosures

This task applies if you are installing one or more expansion enclosures to a control enclosure.

Before you begin

If you purchased disk drives that were not pre-installed for you, you must install all of the drives **before** connecting the SAS cables to the expansion enclosures.

About this task

This task applies if you are installing one or more expansion enclosures. You can attach up four expansion enclosures to the control enclosure.

Note: When inserting SAS cables, make sure the connector (Figure 25) is oriented correctly.

- The blue pull tab must be **below** the connector.
- Insert the connector **gently** until it clicks into place. If you feel resistance, the connector is probably oriented the wrong way. Do **not** force it.
- When inserted correctly, the connector can only be removed by pulling the tab.

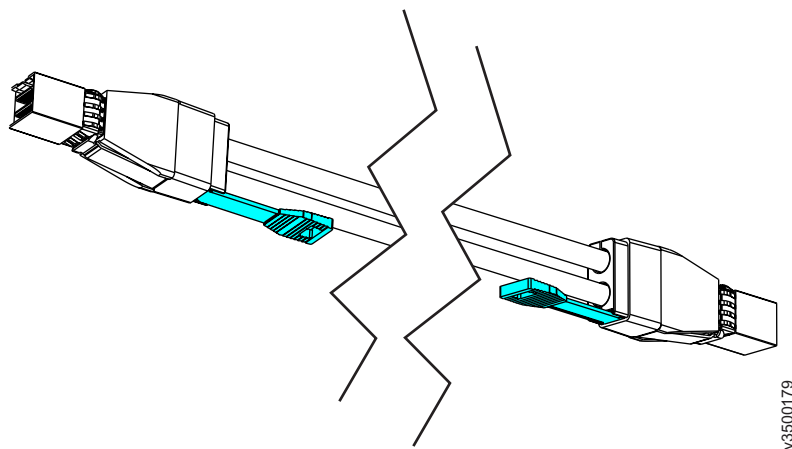


Figure 25. SAS cable connectors

Be aware of these guidelines when you begin to attach the cables to the SAS ports:

- No more than two expansion enclosures can be chained to port 1 (below the control enclosure). The connecting sequence from port 1 of the node canister is called chain 1.
- No cable can be connected between a port on an left canister and a port on a right canister.
- Attach cables serially between enclosures; do not skip an enclosure.
- The last enclosure in a chain must not have cables in port 2 of canister 1 and port 2 of canister 2.
- Ensure that cables are installed in an orderly way to reduce the risk of cable damage when replaceable units are removed or inserted.
- Arrange your cables to provide access to:
 - USB ports. USB port access is required when you use a USB flash drive to configure the system.

- The enclosures themselves. Access is required to the hardware for servicing and for safely removing and replacing components using two or more people.

Procedure

To install the cables, complete the following steps.

1. Using the supplied SAS cables, connect the control enclosure to the first expansion enclosure as shown in Figure 26 on page 36.
 - a. Connect SAS port 4 of the left node canister in the control enclosure to SAS port 1 of the left expansion canisters in the first expansion enclosure.
 - b. Connect SAS port 4 of the right node canister in the control enclosure to SAS port 1 of the right expansion canisters in the first expansion enclosure.

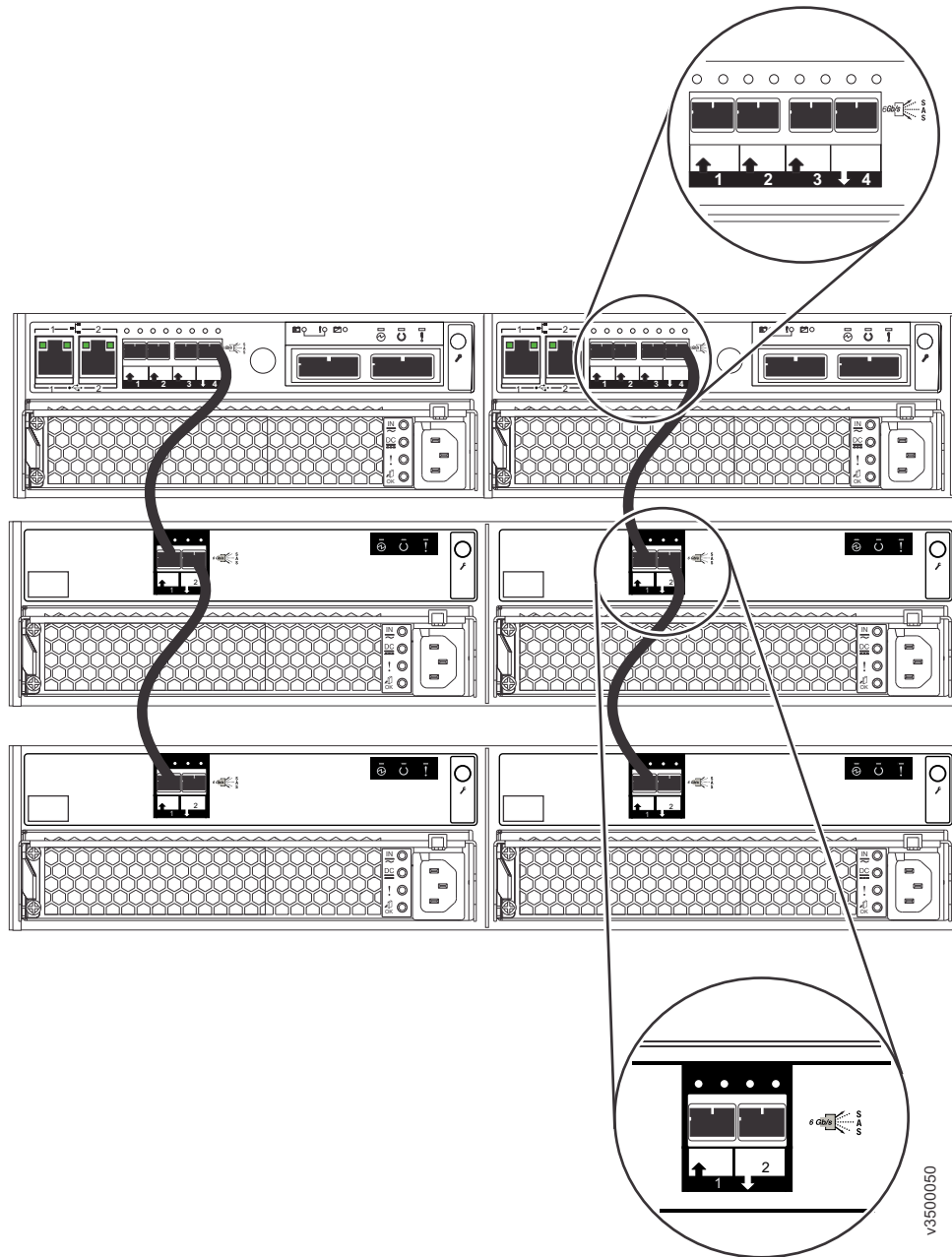


Figure 26. Connecting the SAS cables

2. If additional expansion enclosures are installed, connect each one to the previous expansion enclosure as shown in Figure 26.
 - a. Connect SAS port 2 of the left expansion canister in the previous expansion enclosure to SAS port 1 of the left expansion canister in the newly installed expansion enclosure.
 - b. Connect SAS port 2 of the right expansion canister in the previous expansion enclosure to SAS port 1 of the right expansion canister in the newly installed expansion enclosure.

Note: A control enclosure can support up to four expansion enclosures.

Connecting Ethernet cables for system management

To provide system management connectivity, you must connect Ethernet cables to Ethernet port 1 of each node canister in the control enclosure. This connection can optionally also be used for iSCSI host connection. Ethernet port 2 can optionally be connected to provide a second system management address, a second iSCSI host connection, or both.

About this task

Procedure

To install the cables, complete the following steps.

1. Connect Ethernet port 1 on each node canister to the same Ethernet switch, as shown in Figure 27.

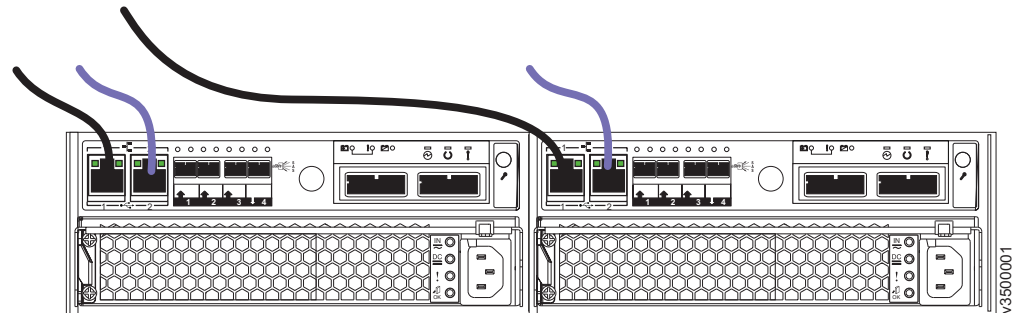


Figure 27. Connecting the Ethernet cables

2. Optionally, connect Ethernet port 2 on each node canister to the same Ethernet switch. (Figure 27 shows these optional cables in a lighter color.)

Connecting Ethernet cables to 1 Gbps iSCSI 4-port host interface cards

If you installed 1 Gbps iSCSI 4-port host interface cards, you must connect Ethernet cables to them.

About this task

The Ethernet port numbering on the host interface card starts at 3, because Ethernet ports one and two are built into the canister.

Note: The Ethernet cables are connected in pairs. Both canisters must have the same number of cables connected.

Procedure

To install the cables, complete the following steps.

1. Identify the correct pair of Ethernet cables for the Ethernet ports labeled 3 in the left canister and the right canister.
2. Connect the appropriate cable to each port.

3. For each additional pair of Ethernet ports in the right and left canisters, identify the correct pair of cables and connect them.

Results

Figure 28 shows an example configuration with a pair of Ethernet cables connected to port 3 in each canister, and another pair connected to port 4 in each canister.

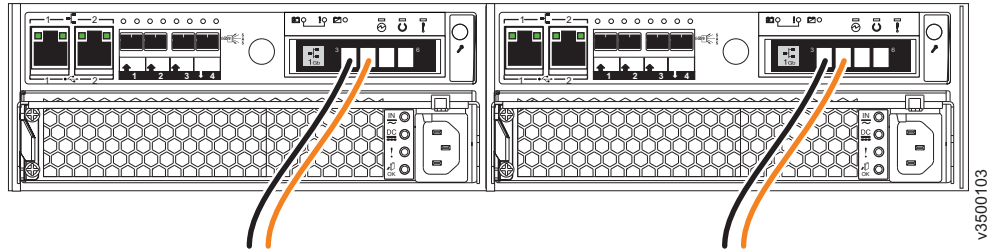


Figure 28. Example configuration with two pairs of Ethernet cables connected to 1 Gbps iSCSI 4-port host interface cards

Connecting fibre cables to a 10 Gbps iSCSI-FCoE 2-port host interface card

If you installed a 10 Gbps iSCSI-FCoE 2-port host interface card, you must connect fibre cables to it.

About this task

The Ethernet port numbering on the host interface card starts at 3, because Ethernet ports one and two are built into the canister.

Note: The fibre cables are connected in pairs. Both canisters must have the same number of cables connected.

Procedure

To install the cables, complete the following steps.

1. Identify the correct pair of fibre cables for the Ethernet ports labeled 3 in the left canister and the right canister.
2. Connect the appropriate cable to each port.
3. For each additional pair of Ethernet ports in the right and left canisters, identify the correct pair of cables and connect them.

Results

Figure 29 on page 39 shows an example configuration with a pair of Ethernet cables connected to port 3 in each canister, and another pair connected to port 4 in each canister.

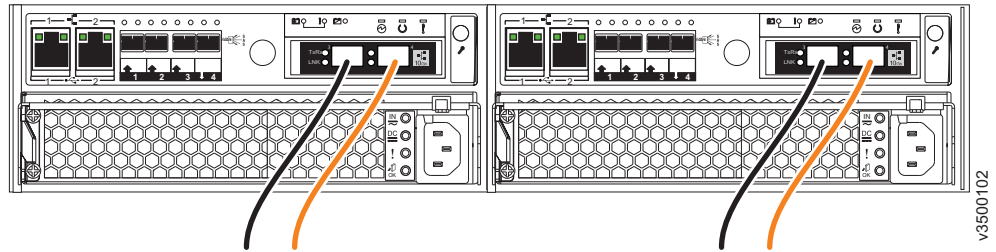


Figure 29. Example configuration with two pairs of Ethernet cables connected to 10 Gbps iSCSI-FCoE 2-port host interface cards

Connecting Fibre Channel cables to an 8 Gbps Fibre Channel 4-port host interface card

If you installed an 8 Gbps Fibre Channel 4-port host interface card, you must connect Fibre Channel cables to it.

Procedure

To install the cables, complete the following steps.

1. Connect the required number of Fibre Channel cables. Refer to the “Planning” section of the information center for instructions on determining the number of cables required.

Note: Both canisters must have the same number of cables connected. Figure 30 shows an example configuration with two Fibre Channel cables connected to each canister.

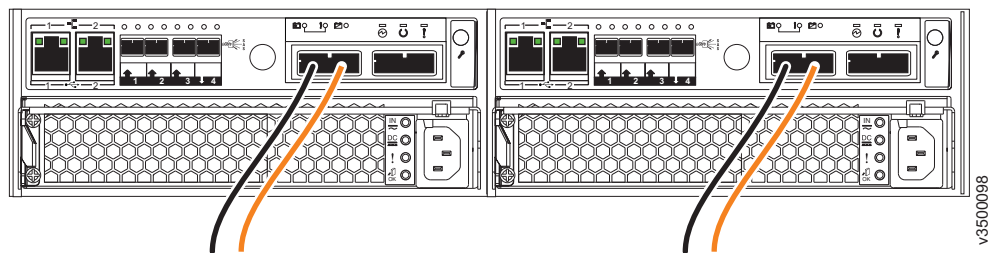


Figure 30. Example configuration with two Fibre Channel cables per canister

2. If you want to connect additional Fibre Channel cables, make sure to connect the same number of cables to each canister. Figure 31 on page 40 shows an example configuration with four Fibre Channel cables connected to each canister.

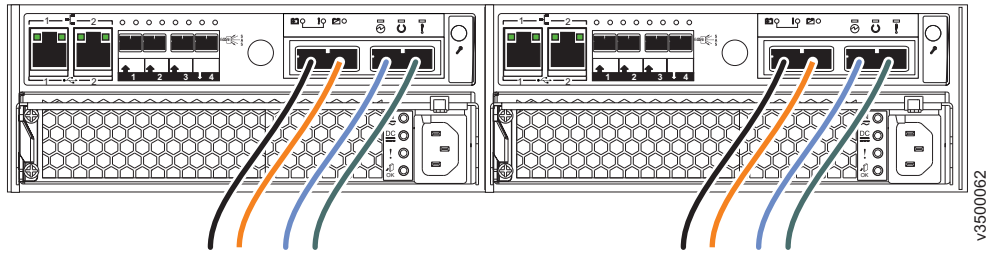


Figure 31. Example configuration with four Fibre Channel cables per canister

Connecting SAS cables to a host

When installing a control enclosure, you can connect it to a host with SAS cables.

About this task

Two types of SAS cables are used for host attachment, depending on the requirements of the host.

- Mini SAS HD to Mini SAS HD (Figure 32)
- Mini SAS HD to Mini SAS (Figure 33)

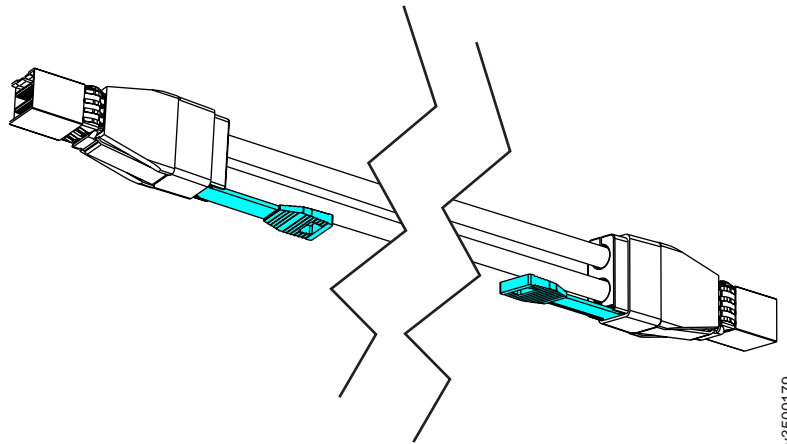


Figure 32. Mini SAS HD to Mini SAS HD cable

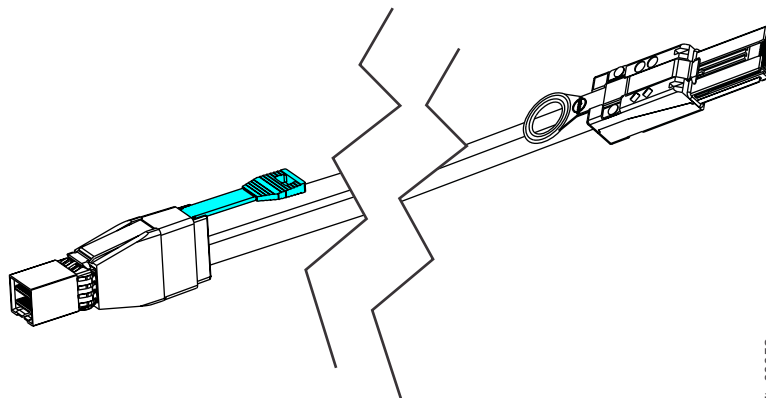


Figure 33. Mini SAS HD to Mini SAS cable

Note: When inserting SAS cables, make sure the connector is oriented correctly.

- When connecting to the SAS ports on the left side of the node canister, the blue pull tab must be **below** the connector.
- When connecting to a SAS 4-port host interface card, the blue pull tab must be **above** the connector.
- Insert the connector **gently** until it clicks into place. If you feel resistance, the connector is probably oriented the wrong way. Do **not** force it.
- When inserted correctly, the connector can only be removed by pulling the tab.

Procedure

To install the cables, complete the following steps.

1. Connect the required number of SAS cables. Refer to the “Planning” section of the information center for instructions on determining the number of cables required.

Note: When connecting to the SAS ports on the left side of the node canister, each host must be connected to **both** canisters. Both canisters must have the **same** number of cables connected.

2. Arrange the cables to provide access to the hardware.
 - **USB ports.** USB port access is required when you use a USB flash drive to configure the system.
 - **The enclosures themselves.** Access is required to the hardware for servicing and for safely removing and replacing components using two or more people.

Results

Figure 34 shows an example configuration with three SAS cables connected to each canister.

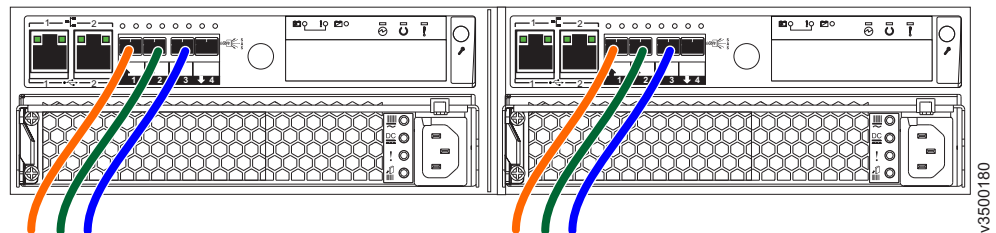


Figure 34. Example configuration with three SAS cables per canister

Figure 35 on page 42 shows an example configuration with two SAS cables connected to a SAS 4-port host interface card.

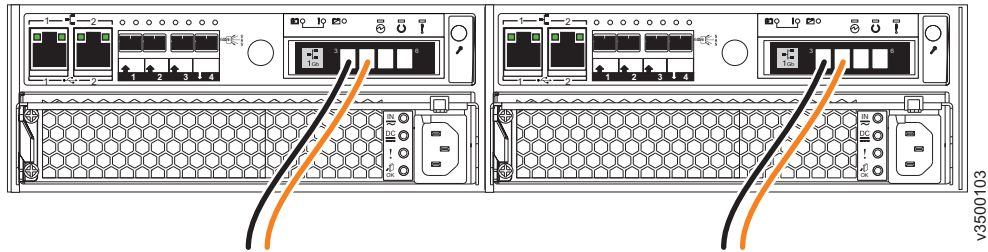


Figure 35. Example configuration with two SAS cables connected to a SAS 4-port host interface card

Powering on the system

After installing all hardware components, you must power on the system and check its status.

About this task

Attention: Do not power on the system with any open bays or slots.

- Every unused drive bay must be occupied by a filler panel.
- Filler plates must be installed in all empty canister bays and host interface card slots.

Open bays or slots disrupt the internal air flow, causing the drives to receive insufficient cooling.

Procedure

To power on the system, complete the following steps.

1. Power on all expansion enclosures by plugging the power cords into properly grounded electrical outlets. There is no power switch.

Note: Each enclosure has two power supply units. To provide power failure redundancy, connect the two power cords to separate power circuits.

2. Check the LEDs on each expansion canister (see Figure 36).

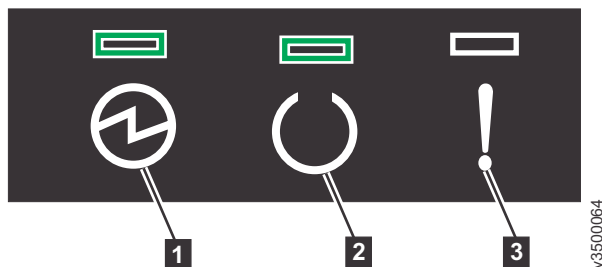


Figure 36. Expansion canister LEDs

- **1** Power
- **2** Status
- **3** Fault

The canister is ready with no critical errors when **Power** is illuminated, **Status** is illuminated, and **Fault** is off. If a canister is *not* ready, refer to the *Procedure*:

Understanding the system status using the LEDs topic in the troubleshooting section of the Storwize V3700 Information Center.

3. Wait for all expansion canisters to finish powering on.
4. Plug the power cord of each power supply in the control enclosure into a properly grounded electrical outlet.

Note: Each enclosure has two power supply units. To provide power failure redundancy, connect the two power cords to separate power circuits.

5. Check the LEDs on each node canister in the control enclosure (see Figure 37).

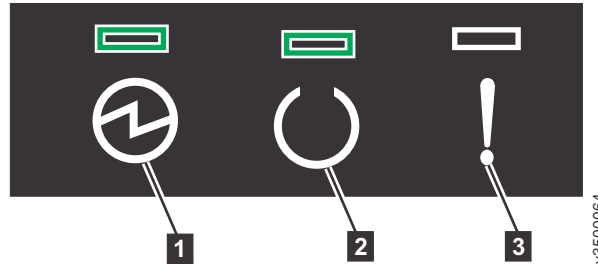


Figure 37. Node canister LEDs

- **1** Power
- **2** Status
- **3** Fault

The canister is ready with no critical errors when **Power** is illuminated, **Status** is blinking, and **Fault** is off. If a canister is *not* ready, refer to the *Procedure: Understanding the system status using the LEDs* topic in the troubleshooting section of the Storwize V3700 Information Center.

Chapter 3. Configuring the system

Configuring your system is necessary in two situations: when you power up a new system for the first time, and when you add an expansion enclosure to an existing system.

The following instructions use the supplied USB flash drive to initialize the system. If you are not authorized to use a USB flash drive in your situation, refer to the “Troubleshooting” section of the Information Center for details on how to make an Ethernet connection to the enclosure and to initialize the system using the service assistant GUI.

After initializing the system, you will use the Storwize management GUI to complete the configuration procedures.

- The management GUI requires a supported web browser (see “Web browser requirements to access the management GUI”).
- To configure a new system, you will log on to the management GUI with the default user name and password (see “User name and password for system initialization” on page 46).

The steps for initializing a new system vary, depending on the operating system of the computer you use for the procedure.

- “Initializing the system with a Microsoft Windows computer” on page 46
- “Initializing the system with an Apple Macintosh computer” on page 47
- “Initializing the system with a Linux computer” on page 48

The steps for adding an expansion enclosure to an existing system are described in “Adding an expansion enclosure to an existing system” on page 50.

Web browser requirements to access the management GUI

You must have a supported Web browser to access the management GUI.

The management GUI supports the following web browsers:

- Mozilla Firefox 18
- Mozilla Firefox Extended Support Release (ESR) 17
- Internet Explorer (IE) 8 and 9
- Google Chrome 24

IBM supports higher versions of the browsers as long as the vendors do not remove or disable functionality that the product relies upon. For browser levels higher than the versions that are certified with the product, customer support accepts usage-related and defect-related service requests. As with operating system and virtualization environments, if IBM support cannot re-create the issue in our lab, we might ask the client to re-create the problem on a certified browser version to determine whether a product defect exists. Defects are not accepted for cosmetic differences between browsers or browser versions that do not affect the functional behavior of the product. If a problem is identified in the product, defects are

accepted. If a problem is identified with the browser, IBM might investigate potential solutions or work-arounds that the client can implement until a permanent solution becomes available.

User name and password for system initialization

During the initialization procedure, you will need to log in to the Storwize management GUI.

The default user name and password for the management GUI are listed in Table 7.

Table 7. Default user name and password for the management GUI

User name	Password
superuser	passw0rd

Note: The 0 character in the password is a zero, not the letter O.

Initializing the system with a Microsoft Windows computer

To initialize a new system with a Microsoft Windows computer, use the initialization tool that was shipped with your order.

Before you begin

- Begin this procedure *after* you have installed all the enclosures, drives and other options you have purchased.
- You need a personal computer to complete the initialization procedure. The personal computer must have:
 - A USB port
 - A supported browser (see “Web browser requirements to access the management GUI” on page 45)

For best results, the personal computer and the Storwize system must be connected to the same network.

About this task

This procedure is valid for Microsoft Windows 7 (64-bit) or XP (32-bit).

- Use this procedure *only* when initializing a new control enclosure (with, optionally, one to four expansion enclosures).
- Do *not* use this procedure when adding an expansion enclosure to an existing system.

Procedure

To initialize the system, complete the following steps.

1. Gather the information you will use to configure the system.
 - You must have the IP network address you will use to manage the system.
 - IP address
 - Subnet mask
 - Gateway
 - Other information is optional, but useful for enabling additional capabilities.

- The IP address of a Network Time Protocol (NTP) server for automated setting of date and time
 - The IP address of a simple mail transfer protocol (SMTP) server for sending notification of alerts
2. Locate the USB flash drive that was shipped with your order in the documentation package.
 3. Insert the USB flash drive into a USB port on the personal computer.
 4. To launch the tool, open the USB flash drive. and double-click **InitTool.bat**. The initialization tool wizard starts.
 5. In the wizard, click **Next** and select **Create a new system**.
 6. Follow the on-screen instructions given by the initialization tool. You will be instructed to complete the following actions:
 - a. Enter the details of the system management address you wish to use.
 - b. Take the USB flash drive to the Storwize system and allow it to initialize.
 - c. Return the flash drive to the workstation to check that the initialization completed.
 7. If the system initialization completed successfully, click **Finish**. If you have a network connection to the Storwize system, the system management GUI is displayed. If the workstation does not have a network connection to the Storwize system, go to the workstation you will use to manage the system and start a supported browser. Direct the browser to the management address you specified for the system.
 8. Log in with user name **superuser** and password **passw0rd**.

Note: The **0** character in the password is a zero, not the letter O.
 9. Follow the on-screen instructions to begin setting up your system.

Note: The other options that are available in the initialization tool are used to recover the service IP address or the superuser password.

Initializing the system with an Apple Macintosh computer

To initialize a new system with an Apple Macintosh computer, use the initialization tool that was shipped with your order.

Before you begin

- Begin this procedure *after* you have installed all the enclosures, drives and other options you have purchased.
- You need a personal computer to complete the initialization procedure. The personal computer must have:
 - A USB port
 - A supported browser (see “Web browser requirements to access the management GUI” on page 45)

For best results, the personal computer and the Storwize system must be connected to the same network.

About this task

This procedure is valid for Apple MacOS X 10.7.

- Use this procedure *only* when initializing a new control enclosure (with, optionally, one to four expansion enclosures).

- Do *not* use this procedure when adding an expansion enclosure to an existing system.

Procedure

To initialize the system, complete the following steps.

1. Gather the information you will use to configure the system.
 - You must have the IP network address you will use to manage the system.
 - IP address
 - Subnet mask
 - Gateway
 - Other information is optional, but useful for enabling additional capabilities.
 - The IP address of a Network Time Protocol (NTP) server for automated setting of date and time
 - The IP address of a simple mail transfer protocol (SMTP) server for sending notification of alerts
2. Locate the USB flash drive that was shipped with your order in the documentation package.
3. Insert the USB flash drive into a USB port on the personal computer.
4. Open a terminal window.
5. Locate the root directory of the USB flash drive. The root directory is usually located in the /Volumes/ directory.
6. Type: **sh InitTool.sh** The initialization tool wizard starts.
7. In the wizard, click **Next** and select **Create a new system**.
8. Follow the on-screen instructions given by the initialization tool. You will be instructed to complete the following actions:
 - a. Enter the details of the system management address you wish to use.
 - b. Take the USB flash drive to the Storwize system and allow it to initialize.
 - c. Return the flash drive to the workstation to check that the initialization completed.
9. If the system initialization completed successfully, click **Finish**. If you have a network connection to the Storwize system, the system management GUI is displayed. If the workstation does not have a network connection to the Storwize system, go to the workstation you will use to manage the system and start a supported browser. Direct the browser to the management address you specified for the system.
10. Log in with user name **superuser** and password **passw0rd**.

Note: The **0** character in the password is a zero, not the letter O.
11. Follow the on-screen instructions to begin setting up your system.

Note: The other options in the initialization tool are used to reset the service IP address or the superuser password.

Initializing the system with a Linux computer

To initialize a new system with a Linux computer, use the initialization tool that was shipped with your order.

Before you begin

- Begin this procedure *after* you have installed all the enclosures, drives and other options you have purchased.
- You need a personal computer to complete the initialization procedure. The personal computer must have:
 - A USB port
 - A supported browser (see “Web browser requirements to access the management GUI” on page 45)

For best results, the personal computer and the Storwize system must be connected to the same network.

About this task

This procedure is valid for Red Hat Enterprise Server 5 or Ubuntu desktop 11.04.

- Use this procedure *only* when initializing a new control enclosure (with, optionally, one to four expansion enclosures).
- Do *not* use this procedure when adding an expansion enclosure to an existing system.

Procedure

To initialize the system, complete the following steps.

1. Gather the information you will use to configure the system.
 - You must have the IP network address you will use to manage the system.
 - IP address
 - Subnet mask
 - Gateway
 - Other information is optional, but useful for enabling additional capabilities.
 - The IP address of a Network Time Protocol (NTP) server for automated setting of date and time
 - The IP address of a simple mail transfer protocol (SMTP) server for sending notification of alerts
2. Locate the USB flash drive that was shipped with your order in the documentation package.
3. Insert the USB flash drive into a USB port on the personal computer.
4. Open a terminal window.
5. Locate the root directory of the USB flash drive. It is usually located in the `/media/` directory. If an automatic mount system is used, the root directory can be located by typing the **mount** command.
6. Type: **sh InitTool.sh** The initialization tool wizard starts.
7. In the wizard, click **Next** and select **Create a new system**.
8. Follow the on-screen instructions given by the initialization tool. You will be instructed to complete the following actions:
 - a. Enter the details of the system management address you wish to use.
 - b. Take the USB flash drive to the Storwize system and allow it to initialize.
 - c. Return the flash drive to the workstation to check that the initialization completed.

9. If the system initialization completed successfully, click **Finish**. If you have a network connection to the Storwize system, the system management GUI is displayed. If the workstation does not have a network connection to the Storwize system, go to the workstation you will use to manage the system and start a supported browser. Direct the browser to the management address you specified for the system.

10. Log in with user name **superuser** and password **passw0rd**.

Note: The **0** character in the password is a zero, not the letter O.

11. Follow the on-screen instructions to begin setting up your system.

Note: The other options that are available in the initialization tool are used to recover the service IP address or the superuser password.

Adding an expansion enclosure to an existing system

When adding an expansion enclosure to an existing system, you must use the Storwize management GUI to update the system configuration.

About this task

The management GUI requires a supported web browser (see “Web browser requirements to access the management GUI” on page 45).

Procedure

To add an expansion enclosure to your system, complete the following steps.

1. Install support rails for the new enclosure (see “Installing the support rails” on page 11).
2. Install the new enclosure in the rack (see “Installing the enclosures” on page 16).
3. Connect the expansion enclosure attachment cables (see “Connecting SAS cables to expansion enclosures” on page 34).
4. Connect the power cables and wait for the SAS LEDs to illuminate (see “Powering on the system” on page 42).
5. Start the management GUI.
6. Select **Monitoring > System Details**.
7. Select the system name in the tree.
8. Select **Actions > Add Enclosures > Expansion only**.
9. Continue to follow the on-screen instructions.

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Federal Communications Commission (FCC) statement

This explains the Federal Communications Commission's (FCC's) statement.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can

radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, might cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors, or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device might not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation.

Industry Canada compliance statement

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

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

Australia and New Zealand Class A Statement

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

European Union Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of European Union (EU) Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

Attention: This is an EN 55022 Class A product. In a domestic environment this product might cause radio interference in which case the user might be required to take adequate measures.

Responsible Manufacturer:

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Germany Electromagnetic Compatibility Directive

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

“Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen.”

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem “Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG).” Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:

International Business Machines Corp.
New Orchard Road
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Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:

IBM Deutschland GmbH
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Tele: +49 7032 15-2941
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Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

People's Republic of China Class A Statement

中华人民共和国“A类”警告声明

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Taiwan Class A compliance statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

talerni

Taiwan Contact Information

This topic contains the product service contact information for Taiwan.

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台北市松仁路7號3樓
電話：0800-016-888

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Japan VCCI Council Class A statement

This explains the Japan Voluntary Control Council for Interference (VCCI) statement.

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用する
と電波妨害を引き起こすことがあります。この場合には使用者が適切な対策
を講ずるよう要求されることがあります。

VCCI-A

Japan Electronics and Information Technology Industries Association Statement

This explains the Japan Electronics and Information Technology Industries Association (JEITA) statement for less than or equal to 20 A per phase.

高調波ガイドライン適合品

jjeta1

This explains the JEITA statement for greater than 20 A per phase.

高調波ガイドライン準用品

jjeta2

Korean Communications Commission Class A Statement

This explains the Korean Communications Commission (KCC) statement.

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Russia Electromagnetic Interference Class A Statement

This statement explains the Russia Electromagnetic Interference (EMI) statement.

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

rusemi

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