

IBM TotalStorage® DS6000 Maintaining



Maintaining

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Note:

Before using this information and the product it supports, read the information in "Notices" on page 69.

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Notices and publication information

This section contains information about safety notices that are used in this guide, environmental notices for this product, publication information, and information about sending your comments to IBM.

Safety notices

Complete this task to find information about safety notices.

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

1. Look for the identification number at the end of each danger notice or each caution notice. In the following examples, the numbers **1000** and **1001** 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.

1000

CAUTION:

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

1001

2. Find the number that matches in the *IBM System Storage Solutions Safety Notices for IBM Versatile Storage Server and IBM System Storage Enterprise Storage Server*, GC26-7229.

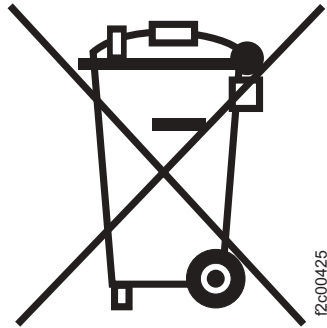
Environmental notices

This section identifies the environmental guidelines that pertain to this product.

Product recycling and disposal

This unit contains recyclable materials.

This unit must be recycled or discarded according to applicable local and national regulations. IBM® encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>.



Notice: This mark applies only to countries within the European Union (EU) and Norway.

Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

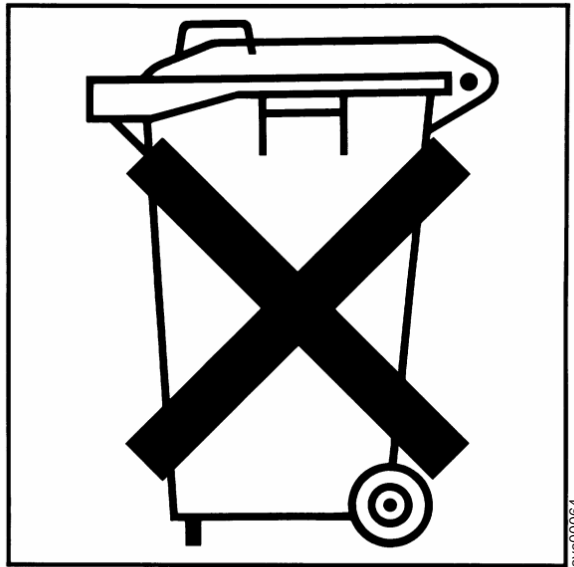
In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

In the Netherlands the following applies:



For Taiwan:



Please recycle batteries.

廢電池請回收

How to send your comments

Your feedback is important to help us provide the highest quality information. If you have any comments about this information or any other DS6000™ series documentation, you can submit them in the following ways:

- e-mail

Submit your comments electronically to the following e-mail address:

starpubs@us.ibm.com

Be sure to include the name and order number of the book and, if applicable, the specific location of the text you are commenting on, such as a page number or table number.

- Mail

Fill out the Readers' Comments form (RCF) at the back of this book. Return it by mail or give it to an IBM representative. If the RCF has been removed, you can address your comments to:

International Business Machines Corporation
RCF Processing Department
Department 61C
9032 South Rita Road
TUCSON AZ 85775-4401

Chapter 1. Maintaining

The topics in this section provide information related to maintaining your DS6000 storage unit. Topics covered include monitoring your storage unit and repairing failures.

Chapter 2. Following a light path to perform unguided service

Complete this task to locate and repair a resource using the LED indicators that are located throughout the enclosure.

You can use these steps to follow LED indicators from the beginning to the end of a service action. You do not need to access the DS Storage Manager to replace a resource that has a solid amber error light.

1. Find the amber system alert light on the front display panel of the server enclosure.
2. Determine where the fault is located and perform one of the following actions:
 - If the fault on opposite side indicator is lit on the front display panel, move to the rear of the server.
 - If the fault in external enclosure indicator is lit on the front display panel, use the location indicators and the **Identify** button on the rear operator panel to find the enclosure that is connected to the server with a solid amber system alert light.
 - If the system alert indicator is lit and no other lights or indicators are lit on the front display panel, the fault is on a resource that is found on the front of the enclosure. Continue to step 3.
3. Find the resource with a solid amber error indicator.
4. Order a new resource to replace the one with the fault.
5. Remove the resource.

Attention: Review the remove and replace procedures for a resource before removing it. You must replace some resources within a specific time limit. In some cases, if you remove a resource without immediately replacing it, you must place a blank version of the resource in the empty slot to prevent overheating of the storage unit.

6. Replace the resource. The system automatically senses the new resource and begins the procedure to resume normal operation for that resource.
7. Determine if you need to perform further repair actions.
 - If the system alert indicator is no longer lit, you have successfully replaced all required resources. The error entry in the system log closes and the storage unit resumes normal operation. You do not need to take any further action.
 - If, after you replace the resource, the system alert indicator is still lit, you must replace another resource. Repeat these steps to identify and replace the next resource.

Chapter 3. Performing guided service through the problem log

Complete this task to locate and repair a resource using the log entries in the DS Storage Manager.

Before you begin, you must review the effects of performing a service action on the resource you are going to repair.

Perform the following steps to service a storage unit using the information found in the Logs pages of the DS Storage Manager.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Logs**.
2. The initial log entry table displays new error or informational entries from the preceding 25 hours. If you want to view an entry for an event that occurred longer than 25 hours ago, you must select the appropriate storage unit information to filter the table.
3. **Select** the error entry for which you want to complete service.
4. Select **View details, Go**, to view more specific log entry information.
5. Find and select the first resource in the list of affected resources. If more than one resource must be replaced, the resources are listed in the order in which they must be replaced. Replace the first resource in the list before the others. Next, replace the second resource in the list. Follow this method until all required resources have been replaced.
6. Order a replacement resource, if necessary.
7. Select **Take resource offline** to begin to quiesce the resource.
Attention: Review the remove and replace procedures for a resource before quiescing and removing it. You must replace some resources within a specific time limit. In some cases, if you remove a resource without immediately replacing it, you must place a blank version of the resource in the empty slot to prevent overheating of the storage unit.
8. Find the appropriate resource in the storage unit.
9. Wait for the solid amber alert light to come on.
10. Remove the resource.
11. Replace the resource. The resource will automatically begin the procedure to resume operation.
12. Review the Logs page to determine if the log entry has closed or if you need to perform additional actions.

Note: If you take a hardware resource offline and decide not to remove it from the enclosure, you must bring the resource online through the DS Storage Manager before it can resume operation.

Chapter 4. Contacting IBM

Complete this task to contact IBM or view the IBM Support Web site.

You must have an Internet connection to contact IBM Support.

If you are contacting IBM Support for problem determination and resolution, you must also collect any information that can assist the support contact in diagnosing the issue. Such information can include, but is not limited to:

- Problem description
 - Machine serial numbers
 - Physical configuration information
 - Logical configuration information
 - Level of code that is installed on the system
 - Attached host types, host code levels, and world wide node names
 - Any applicable error messages
1. In the navigation, select **Real-time manager** → **Monitor System** → **Contact IBM**.
 2. Click the Contact IBM link on the page to open a new browser window for the IBM Support Web site.
 3. If you have not visited this site before, you must select your appropriate country from the drop down menu. If you have completed this step during a previous visit to the site, you do not have to select your country. The page opens automatically.

Chapter 5. Viewing logs

Complete this task to view error and informational log entries for your storage unit.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Logs**. The log entry table initially shows all log entries, informational or error, generated in the preceding 25 hours. If the entry that you are looking for is contained within the initial table, you do not need to choose sorting criteria.
2. Choose the storage complex that you want to view log entries for.
3. Choose the storage unit that you want to view log entries for.
4. Choose the level of severity that you want to view log entries for. The table defaults to show log entries for all severity levels.
5. Choose the status that you want to view log entries for. The table defaults to show log entries for all status levels.
6. Select to view all log entries or a range of log entries. If you choose to view a range of log entries. Perform the following steps:
 - a. Indicate the beginning date and time for the range of log entries.
 - b. Indicate the finishing date and time for the range of log entries.
7. Click **Refresh** to obtain the most up-to-date information in the table.
8. View the informational and error log entries shown in the table.
9. Click on the Message ID to view the log entry details for the specific log entry. You can perform maintenance actions or view maintenance information for the resources that are associated with the log entry on the log entry details page. You can also view the details for a log entry by selecting **View details** from the **Select Action** drop-down list and clicking **Go**.

Chapter 6. Viewing log entry details

Complete this task to view the details of a specific informational or error log entry for your storage unit.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Logs**.
2. If necessary, choose filtering values for the log entry table.
3. Click on the Message ID of a log entry to view the details for that entry. You can also view the details for a log entry by selecting **View details** from the **Select Action** drop-down list and clicking **Go**.
4. Review the detailed log entry information.
5. Select one of the resources listed in the table to request a replacement part, view maintenance instructions and examples, take the resource offline, or bring a resource online.

Chapter 7. Viewing and downloading activity logs

Complete this task to export activity logs for your storage complex. The activity logs can be used for auditing purposes to determine when changes were made to a storage complex and by which user.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Logs** → **Activity Logs**. On the Logs — Activity Logs page, in the Storage complex drop-down list, select the storage complex that you want to export activity logs from.
2. Click the **Export** button. A Save File dialog box appears.
3. Navigate to the location that you want the exported activity file to be saved, and then click **Save**.

Chapter 8. Viewing a physical summary

Complete this task to view physical summary information for your storage unit.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Physical summary**.
2. Choose the storage complex that you want to view physical summary information for.
3. Choose the storage unit that is contained within your chosen storage complex that you want to view physical summary information for.
4. Click **Refresh** to obtain the most up-to-date information in the table.
5. View the summary information displayed in table. Repeat these steps to view a different set of physical summary information.

Chapter 9. Viewing property information

Complete this task to view property information

1. In the navigation, select **Real-time manager** → **Monitor system** → **Attributes**.
2. Choose the storage complex that you want to view property information for.
3. Choose the storage unit that you want to view property information for. At this point, you can view general property information for the selected storage unit.
4. Choose the enclosure that you want to view property information for. At this point, you can view general enclosure information for the selected enclosure.
5. Choose the resource that you want to view property information for.
6. Perform any of the following actions:
 - Click on the Status tab to view status information for the selected resource.
 - Click on the Attributes tab to view general resource information.
 - Click on the Maintenance tab to view maintenance information and perform maintenance functions for the selected resource.
7. Repeat these steps to view a different set of property information.

Chapter 10. Viewing a systems summary

Complete this task to view systems summary information for your storage unit.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Systems summary**.
2. Choose the resource type that you want to view summary information for.
3. Choose the storage complexes that you want to view summary information for.
4. Click **Refresh** to obtain the most up-to-date information in the table.
5. View the summary information contained in the table. Repeat these steps to display a different set of systems summary information.

Chapter 11. Viewing a long running task summary

Complete this task to view long running task summary information for your storage unit.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Long running task summary**. On the Long running task summary — Main page, select the long running task that you want to view summary information for.
2. In the **Select Action** drop-down list, select **Properties**, and then click **Go**. The Long running task properties page is displayed.

Chapter 12. Adding disk drive modules in increments of four

Complete this task to add disk drive modules in increments of four.

Note: At least four disk drive modules must be present before you start the DS6000.

1. Refer to "Replacing the disk drive module".
2. Following this procedure, install four disk drive modules.

Chapter 13. Adding an expansion enclosure

Complete this task to add an expansion enclosure to an existing storage unit. You can add an expansion enclosure to an existing storage unit while the server enclosure is powered on (concurrently) or powered off (nonconcurrently).

You must correct and close all open issues or problems on the storage unit before you begin this procedure.

These steps outline a high-level view of the expansion enclosure installation process. Each of these steps is described in greater detail in other areas of the Information Center. Many of these steps are the same as those that you perform when you install an expansion enclosure.

Perform the following steps to add an expansion enclosure to your current configuration:

1. Complete the required preparation steps before you install the expansion enclosure. Your preparation is dependent on your installation area and current storage configuration. The required preparation steps might include, but are not limited to, verifying your ship group, gathering the necessary tools and equipment, familiarizing yourself with the proper ESD procedures, and positioning your rack.
 2. Place the expansion enclosure in the rack.
 - a. (Optional) Remove the hardware resources. If you remove all hardware resources before you lift the enclosure, you should be able to lift the enclosure into the rack. If you choose not to remove all hardware resources first, you must have at least three people that are available to lift the enclosure into the rack.
 - b. Install the support rails.
 - c. Install the expansion enclosure in the rack.
 - d. (Optional) Replace the hardware resources. You must complete this step if you removed the hardware resources in step 2a.
 3. Perform one of the following two sets of steps, depending on your type of installation, concurrent or nonconcurrent:
 - Perform the following steps if you are concurrently installing expansion enclosures with the server enclosure powered on:
 - a. Plan your interenclosure cabling to place the additional expansion enclosures on the appropriate loops. Use the interenclosure cables to create connections between all of the new expansion enclosures on each loop (loop 0 or loop 1). Do not connect the new expansion enclosures to the interenclosure loops (the server enclosure or any currently connected expansion enclosures) at this time.
- Important:** You must correctly connect the interenclosure cables. Failure to do so can result in a loss of communication with the server enclosure.
- b. Connect all of the power cables for the new expansion enclosures.
 - c. Power on all new expansion enclosures by pushing the white power button that is located on the rear operator panel of each expansion enclosure. When you power on the expansion enclosures, start with the

last expansion enclosure on each loop and consecutively power on the next expansion enclosure up on the loop.

The expansion enclosures are powered on after the fans begin spinning, the DC LED indicators on the power supplies turn a solid green, and the power-on lights on the rear operator panels turn a solid green.

- d. After all of the new expansion enclosures are powered on, complete one of the following two steps.
 - If you already have connected one or more expansion enclosures to your server enclosure, use the interenclosure cables to create the final connection between the last expansion enclosure on each loop and the first of the new expansion enclosures for that loop.
 - If you do not have any expansion enclosures that are connected to your server enclosure, use the interenclosure cables to create the final connection between the server enclosure and the first of the new expansion enclosures for each loop.

Important: You must correctly connect the interenclosure cables. Failure to do so can result in a loss of communication with the server enclosure.

- Perform the following steps if you are nonconcurrently installing expansion enclosures with the server enclosure powered off:
 - a. Plan your interenclosure cabling to place the additional expansion enclosures on the appropriate loops. Use the interenclosure cables to connect the new expansion enclosure to the proper loop (loop 0 or loop 1).

Important: You must correctly connect the interenclosure cables. Failure to do so can result in a loss of communication with the server enclosure.

- b. Connect all power cables for the expansion enclosures. All enclosures power on with the server enclosure once you push the power button on the rear operator panel of the server enclosure.

Initialization begins after you use the interenclosure cables to connect the new enclosures to the existing interenclosure loops. The amount of time for initialization is dependent on the I/O load and the number of expansion enclosures that you are adding. This initialization time can take up to one-half hour per expansion enclosure. You cannot use the additional storage until initialization is complete.

4. If you want to verify that initialization is complete, use the DS CLI **lsarraysite** command to view the available array sites. This command requires that you have installed the DS CLI on your Management Console. The new array sites are listed with an "unassigned" state. There should be one new array site for every four DDMs that were added.
5. Before you begin configuring the additional storage, use the DS Storage Manager or the DS CLI to check the problem logs, and check the light path indicators on all new expansion enclosures to ensure that no new problems were generated when you added the expansion enclosures.

Chapter 14. Removing an expansion enclosure from the rack

Complete this task to physically remove an expansion enclosure from the rack or to relocate one or more enclosures of a storage complex to a different rack.

Restriction: This procedure provides the steps to physically remove an unconfigured expansion enclosure from a rack. Do not remove the expansion enclosure from the storage complex if you have already connected the expansion enclosure to the storage complex and turned it on.

1. Power down the expansion enclosure.
2. Remove all cables from the back of the expansion enclosure.
3. From the back of the rack, remove the M6 screws securing the back of the expansion enclosure to the rear of the rack.
4. From the front of the rack, remove the operator panel and the right front bezel.
5. From the front of the rack, remove the M6 screws from the upper mounting holes on both sides of the front of the unit.
6. Lift the expansion enclosure out of the rack.

Note: If you remove the hardware resources, you should be able to lift the unit out of the cabinet with the help of one other person. If you do not remove the hardware resources before installation, you should have at least three other people available to help you lift the unit out of the rack.

Chapter 15. Replacing the enclosure

Complete this task to replace the server or the expansion enclosure.

This procedure must only be performed by IBM Support personnel.

The new enclosure can replace any failed server enclosure or any failed expansion enclosure. The new enclosure is shipped with the same hardware resources as those that are usually contained in an expansion enclosure for efficiency purposes.



Use approved ESD procedures to prevent damage.

This procedure cannot be performed while the storage unit is online. You must prepare to take the server enclosure and all connected expansion enclosures, offline.

1. Take the enclosure offline.
 - a. Take all of the connected hosts offline.
 - b. Press the power button on the rear operator panel of the server enclosure to power-off the server enclosure and all connected expansion enclosures.
2. Disconnect the faulty enclosure from all other machines.
 - a. Disconnect the power cord from the power source and the power supply.
 - b. Disconnect all connected hosts if you are removing a server enclosure. Mark the cables so that you can return them to the same locations on the new enclosure.
 - c. Disconnect all connected enclosures. Mark the cables so that you can return them to the same locations on the new enclosure.
 - d. Disconnect the management console if you are removing a server enclosure.
3. Remove all of the hardware resources, such as the battery backup units, processor cards, power supplies, rear operator panel, front display panel, right-side bezel, and DDMs, from the enclosure. Place the removed hardware resources where they will not be damaged.

Important: You must replace all of the resources in the same location that you removed them from. Ensure that you mark the resources so that they are replaced correctly.

4. Remove the faulty enclosure from the rack.
5. Unpack the new enclosure. Place the packing materials aside where they will not be damaged. You must pack the failed enclosure in the same packing materials that came with the new enclosure.
6. Remove all of the hardware resources from the new enclosure and set them aside in a different location from the hardware resources that belong in the failed enclosure.

Note: The hardware resources that you remove from the new enclosure must be returned within the faulty enclosure. Do not place any of the newly shipped hardware resources in your new enclosure.

7. Ensure that the model type and serial number label information from the faulty enclosure is affixed to the new enclosure. After removing the faulty

enclosure, capture the serial number and model type information from the faulty enclosure and transpose it to the RID tag for the new enclosure. Ensure that the new RID tag is affixed to the new enclosure before you install the new enclosure in the rack.

8. Insert all of the hardware resources from the new enclosure into the failed enclosure.
9. Reuse the packing material from the new enclosure to pack the failed enclosure (with the new hardware resources) into the same box that was used to send the new enclosure.
10. Install the new enclosure in the rack.
11. Carefully insert all of the hardware resources that came from the previously failed enclosure, such as the battery backup units, processor cards, power supplies, rear operator panel, front display panel, right front bezel, and DDMs, into the new enclosure. Use the resource markings that you created when you removed the resources to ensure that you place each resource in the same location that you pulled it from. Also, you must ensure that each of the resources is securely latched into place.
12. Reconnect the new enclosure to the other machines, using the same configurations as the previous enclosure.
 - a. Reconnect all applicable hosts if you are replacing a server enclosure. Refer to your previous cable marking to ensure that you connect the cables to the same locations that you removed them from.
 - b. Reconnect all required enclosures. Refer to your previous cable marking to ensure that you connect the cables to the same locations that you removed them from.
 - c. Reconnect the management console if you are replacing a server enclosure.
 - d. Reconnect the power cord from the power source to the power supply.
13. Power on the server enclosure and all connected expansion enclosures by pressing the power button on the rear operator panel of the server enclosure.

Once all enclosures have completed the startup sequence, you can resume normal operations to the storage unit.

Chapter 16. Requesting a replacement part

Complete this task to request a replacement for a failed part.

You must have an Internet connection to contact IBM and request a replacement part.

1. In the navigation, under Real-time Manager, select, in order, Monitor System and then Properties. In the Properties page, select a storage complex, a storage unit, an enclosure, and then a resource.
2. Click the Maintenance tab to move to the Properties - Maintenance page for the selected resource.
3. Click the **Request a replacement part** button. A new browser window for the IBM Support Web site opens. If you have not visited this site before, you must select your appropriate country from the menu. If you have completed this step during a previous visit to the site, you do not need to select your country. The page opens automatically.

Chapter 17. Removing a resource

This section contains the steps you need to follow to remove a resource from your server or expansion enclosure.

You can remove the following resources from your server or expansion enclosure to repair a fault or other resource event:

- Disk drive module
- Front display panel
- Rear operator panel
- Power supply
- Processor card
- Battery backup unit
- System service card
- Fiber optic cables and SFPs
- Power cable

The front display panel, rear operator panel and power supply are the only resources that you can remove in online mode. Do not remove any other resource while it is online. Ensure that the fault/service LED indicator is a solid amber before you remove a resource. If you need to remove a resource that cannot be removed while it is online, first take the resource offline through the Storage Manager.

Important: When removing resources from an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

Removing the disk drive module

Complete this task to remove a disk drive module from a server or expansion enclosure.



Use approved ESD procedures to prevent damage.

Review the installation requirements in the disk drive module (DDM) installation procedure before you remove a DDM from an enclosure. You must be able to meet specific requirements before you begin the replacement procedure. For example, you must have a replacement DDM available at the correct temperature to replace the DDM that you are removing.

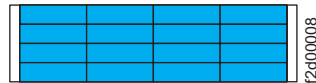
Removing and replacing a disk drive module (DDM) might result in the following effects:

- Removing a DDM that does not have the error indicator lit might cause a lengthy rebuild operation. The risk of losing data is increased during this rebuild operation.
- You might need to rebuild your array.

- If more than one disk drive module is faulty or missing, you will lose the data on that array.

Important: When replacing DDMs in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

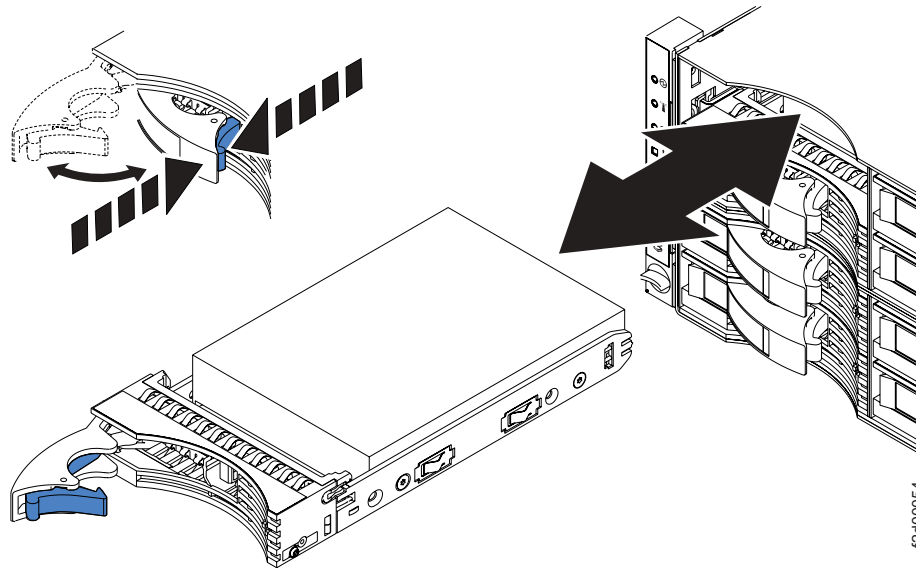
The disk drive modules are located in rows and columns on the front of the storage unit.



Always handle a defective disk drive module carefully. Damage to defective disk drive modules can have a negative effect on failure analysis test results and warranty recovery.

1. Press the blue latch to release the disk drive module handle and pull the handle out and to your left. This action partially ejects the disk drive module out of its slot. Wait 30 seconds for the disk drive to spin down.
2. Grip the disk drive module with both hands to pull it toward you and completely out of the slot. Ensure that the disk drive is properly aligned in a horizontal position until the drive is clear of the enclosure. Failure to do so can result in physical damage to the drive or the drive component.

These images show a disk drive module removal procedure.



You cannot leave an empty disk drive module slot. You must insert either a replacement module or a disk drive module blank to prevent overheating the storage unit.

Removing the front display panel

Complete this task to remove the front display panel from an enclosure.

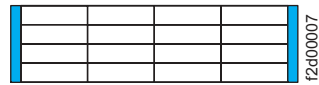


Use approved ESD procedures to prevent damage.

System alerts and LED indicators cannot display properly while the front display panel is removed or nonfunctional.

Important: When you remove the front display panel from an enclosure, ensure that all resources from a particular server or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

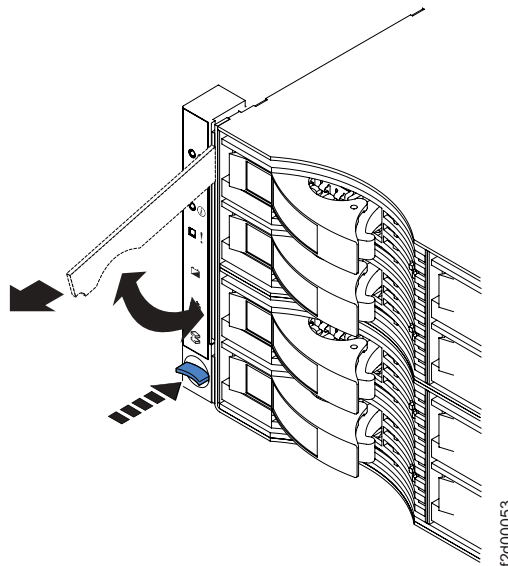
The front display panels are located on the left and right of the front of the enclosure.



To remove the front panel display, perform the following steps:

1. Press the blue release button. This releases the handle.
2. Pull the handle up. This action partially ejects the bottom of the display panel.
3. Use the handle to pull the bottom of the panel up and release the top portion of the panel. This completely removes the display panel.

This image show a front display panel removal procedure.



Removing the power supply

Complete this task to remove the power supply from an enclosure, either when the system is powered off or powered on.

DANGER



Hazardous voltage, current, or energy levels are present inside this resource.



Attention: You must have a replacement resource unpacked and ready to insert into the expansion enclosure before you remove the existing power supply. The power supply must be replaced **within three minutes** to prevent possible loss of access to data. If you do not have a resource ready for immediate replacement, do not continue with these instructions.

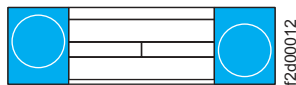
Before you remove the power supply, the error indicator on the resource must be lit, unless the power supply is no longer receiving power.

Removing and replacing a power supply might result in the following effects:

- Overheating has the potential to shut down the storage unit.
- Access to data is lost if both power supplies are faulty or missing.
- If the second power supply fails and the first power supply is not present in the enclosure, the enclosure loses power and you will lose access to all data.
- If you are replacing the power supply in the server enclosure and the second power supply fails, the server enclosure and all attached expansion enclosures lose power and you will lose access to all data within those enclosures.

Important: When removing a power supply from an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

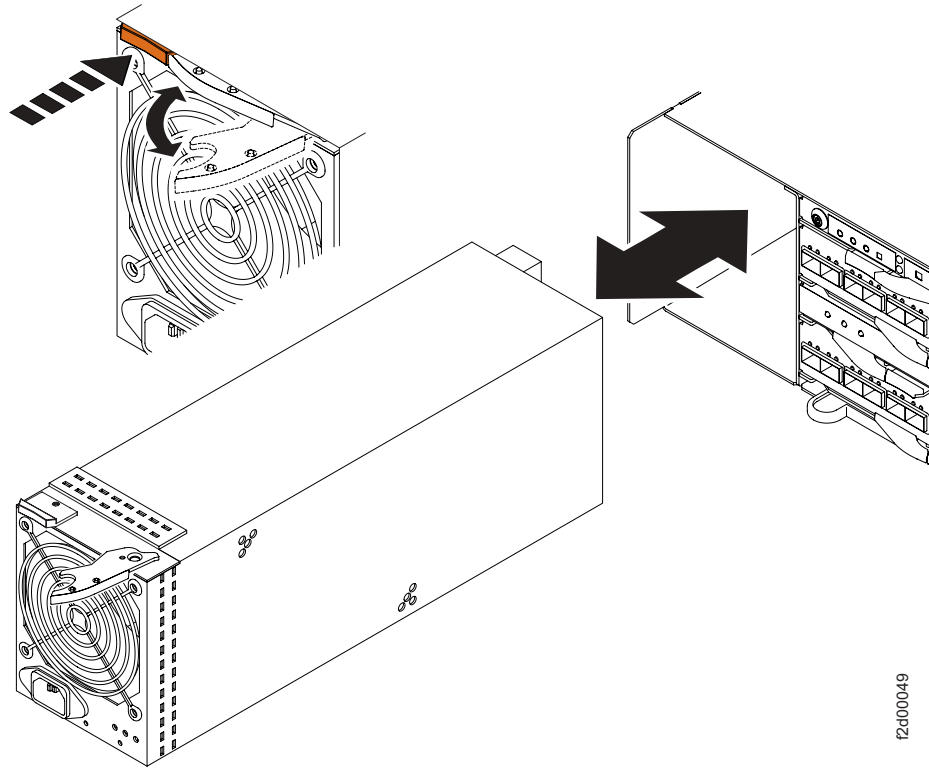
The power supplies are located on the right and left sides of the rear of the enclosure.



1. Detach the power cable from the power supply.
2. Press the release button. This releases the handle.
3. Pull the handle out and towards the middle of the enclosure. This action partially ejects the power supply from the slot.
4. Use the handle to pull the power supply partially out of the slot.

5. Grip the power supply with both hands to pull the unit completely from the slot.

These images show a power supply removal procedure.



You must immediately insert the replacement power supply into the server or expansion enclosure.

Removing the rear operator panel

Complete this task to remove the rear operator panel from an enclosure, either when the system is powered off or powered on.



Use approved ESD procedures to prevent damage.

Before you remove the rear display panel, you must have a replacement rear display panel.

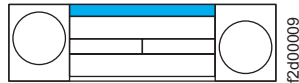
Note: You must replace the rear display panel with a new operator panel. You cannot exchange operator panels between storage units.

Removing and replacing a rear operator panel might result in the following effects:

- System alerts and LED indicators cannot display properly while the rear operator panel is removed or nonfunctional.
- Power-cycling without the rear operator panel will cause an enclosure to have a default serial number that no longer applies to the enclosure.

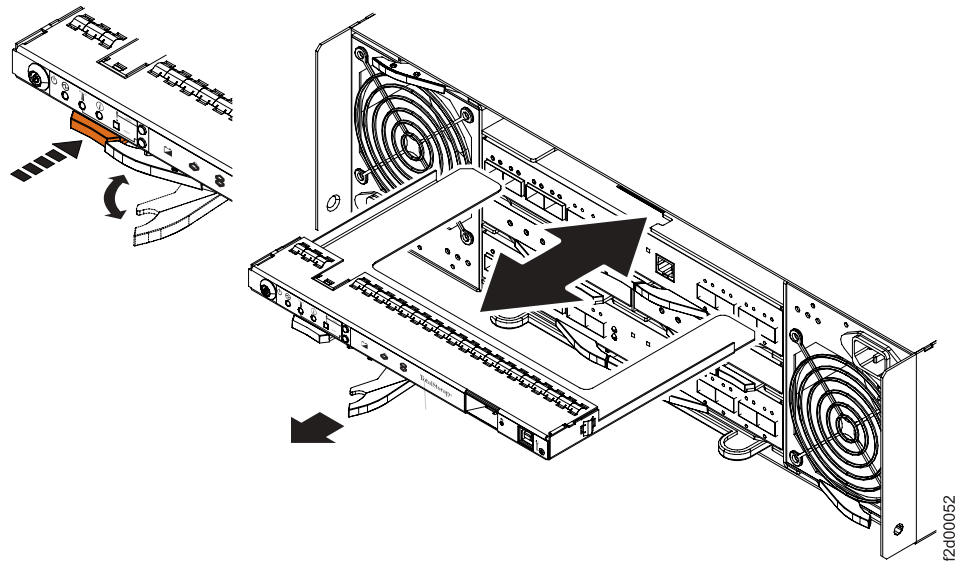
Important: When removing a rear display panel from an enclosure, care should be taken to ensure that all resources from a particular server or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

The rear display panel is located at the rear of the expansion enclosure, on the top of the hardware resource section.



1. Press the orange release button. This releases the handle.
2. Pull the handle out and to the right. This action partially ejects the display panel from the slot.
3. Use the handle to pull the rear display panel partially from the slot.
4. Grip the rear display panel with both hands to pull the unit completely from the slot.

These images show a rear display panel removal procedure.



You must replace the rear display panel with a new rear operator panel.

Removing the battery backup unit

Complete this task to remove the battery backup unit from the server enclosure, either when the system is powered off or powered on.

CAUTION:

The battery is a nickel metal hydride battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call.

You must wait a minimum of 45 minutes after the initial failure, as recorded in the Log details page, before replacing the battery backup unit. You must also ensure that the error indicator is lit on the resource and have a replacement battery backup unit ready for replacement.

Removing and replacing a battery backup unit might result in the following effects:

- While a battery backup unit is out of the enclosure slot, the enclosure is more susceptible to single point of failure errors.
- Removing a battery backup unit that does not have a lit error indicator results in a processor card failover.
- Removing the battery backup unit might result in loss of access to improperly configured host systems.
- Removing a battery backup unit without immediate replacement by either another battery backup unit or a battery backup unit blank might result in the overheating of the enclosure.
- The storage unit might experience performance degradation while a battery backup unit is missing from its slot.

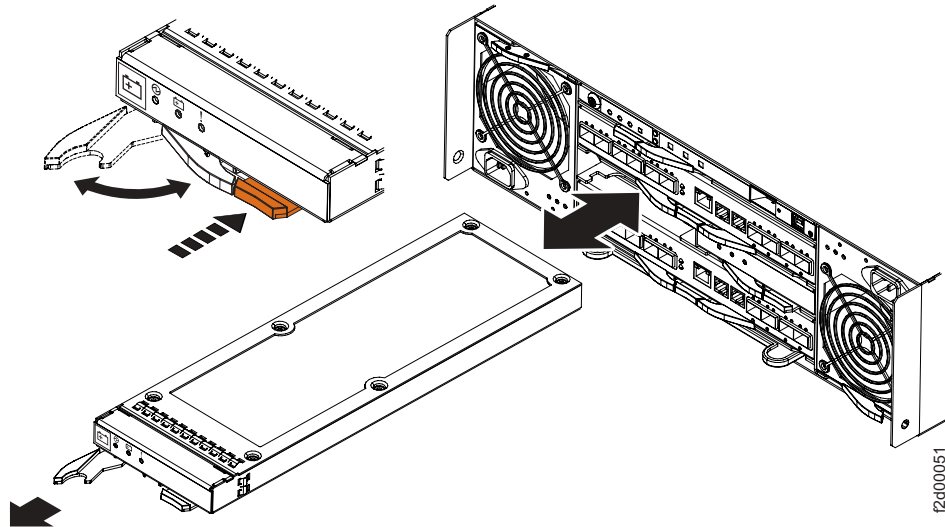
Important: When removing a battery backup unit from an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

The battery backup unit is located horizontally in the middle of the expansion enclosure.



1. Press the orange release button. This releases the handle.
2. Pull the handle out and to the left. This partially ejects the battery backup unit from the slot.
3. Use the handle to pull the battery backup unit partially out of the slot.
4. Grip the battery backup unit with both hands to pull it completely from the slot.

These images show a battery backup unit removal procedure.



You must replace the battery backup unit with another battery backup unit that is in working condition. If you do not have a replacement battery backup unit, you must place a battery backup unit blank in the empty slot to prevent overheating. If you do not replace the battery backup unit, or if you insert a blank unit, the processor card associated with the missing battery remains offline and your server or expansion unit operates in a mode that risks data loss in the event of a failure.

Removing the processor card

Complete this task to remove the processor cards from the server enclosure or the expansion enclosure, either when the system is powered off or powered on.



Use approved ESD procedures to prevent damage.

Before you remove the processor card, you must ensure that the error indicator is lit. If the error light is not lit on the processor card, you must first go to the DS Storage Manager and take the processor card offline. You must also ensure that you have a replacement processor card.

Removing and replacing a processor card might result in the following effects:

- Removing a processor card that does not have a solid amber error indicator lit causes performance degradation and loss of access to data.

Note: Removing a processor card that has a solid amber error indicator does not have any effect on the operation of the storage unit.

- If, while the first processor card is removed, the second processor card fails, the enclosure will lose configuration settings and access to the data. Data loss might occur if certain processes were occurring at the point of failure.
- Removing a processor card will cause loss of access to host systems if multiple paths from the storage unit to the hosts are not configured.

For these reasons, you must remove and replace only one processor card at a time. The processor card that stays in the enclosure retains the configuration settings and transfers the configuration information to the new processor card once you replace it in the enclosure. The time that is required to transfer the configuration settings depends on network connectivity, I/O traffic, and other factors.

Important: When you are removing a processor card from an enclosure, ensure that all resources from a particular server or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure. Record the locations of the fiber optic cables and the Ethernet cable so that you can remember their original locations.

After you remove the processor card from the enclosure, wait a minimum of 2 minutes before you replace the card.

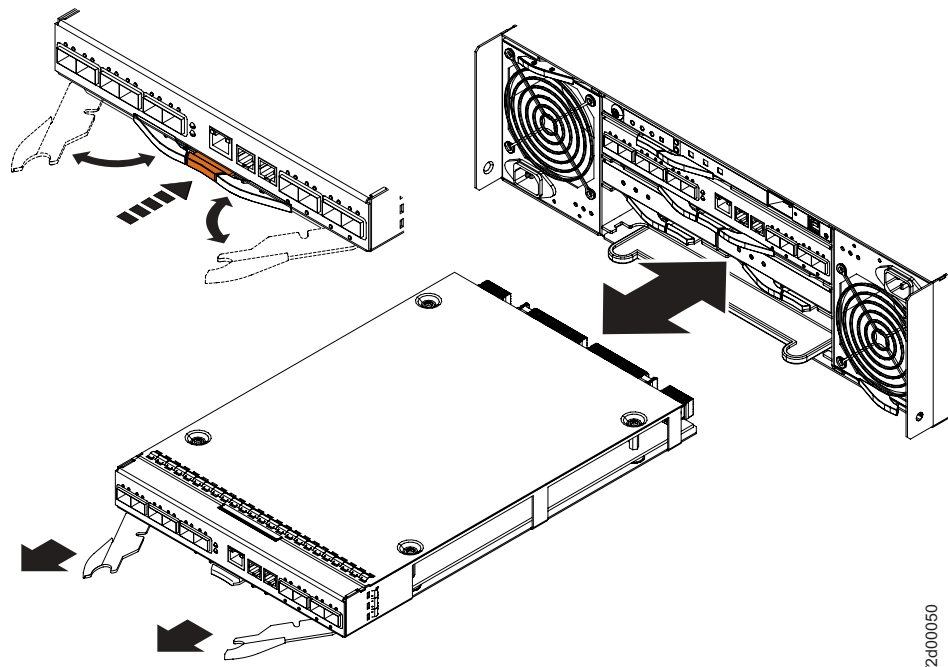
The processor cards are located in the rear of the expansion enclosure. One of the cards is located below the rear operator panel and above the battery backup units. The other card is located below the battery backup units and above the system service card.



In the case of a dual processor card replacement, you must replace the processor cards one at a time to ensure that at least one processor card is always operating in the enclosure. After you replace the first processor card, wait until you can access the enclosure using the DS Storage Manager before you remove and replace the second processor card. Do not remove both processor cards at the same time.

1. Press the orange release button. This releases both handles.
2. Grip both handles, one with each hand.
3. Pull both handles out and towards the outside of the enclosure. The right handle pulls out and to the right of the enclosure. The left handle pulls out and to the left of the enclosure. This partially ejects the processor card from the slot.
4. Use the handles to pull the processor card partially out of the slot.
5. Grip the processor card with both hands to pull the resource completely from the slot.

These images show a processor card removal procedure.



You must replace the processor card with a new processor card.

Removing the system service card

Complete this task to remove the system service card from an enclosure.

The system service card is located in the rear of the expansion enclosure, below all of the other resources.



1. Grip the blue tabs, one with each hand.
2. Pull the system service card completely from the slot.

Replace the card after you reference the information to prevent losing the card.

Removing fiber optic cables and SFPs

Complete this task to remove fiber optic cables and short form factor pluggables (SFPs).

CAUTION:

This product may contain one or more of the following: CD-ROM, DVD-ROM, DVD-RAM, or laser module, which are Class 1 laser products. Please note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle.



Use approved ESD procedures to prevent damage.

Important: Record the locations of the fiber optic cables so that you can remember their original locations. You must replace the fiber optic cables in the same ports that you removed them from.

Removing and replacing cables and SFPs might result in the following effects:

- Disconnecting a host cable might result in loss of access to data if multiple paths from the host to the storage unit have not been configured.
- Disconnecting an Ethernet cable might result in loss of the ability to query and configure the storage unit.
- Disconnecting a cable between enclosures might result in loss of access to the data in all of the subsequently attached storage enclosures.

The fiber optic ports are located on the processor card in the server enclosure.



1. Remove the fiber optic cable from the SFP module.
2. Replace the protective caps on the fiber optic cable.
3. For SFP modules with a plastic tab, pull the plastic tab outward at a 10° angle to release the SFP module latch. For SFP modules with a wire tab, pull the wire tab outward at a 90° angle to release the SFP module latch.
4. Grasp the main portion of the SFP module and pull it from the SFP module port. Do not grasp the wire or plastic tab. This might damage the SFP module.
5. Replace the protective cap on the SFP module.
6. Replace the protective cap on the SFP module port.

Removing the power cable

Complete this task to remove the power cord from an enclosure.

CAUTION:

The power-control button on the device does not turn off the electrical current supplied to the device. The device might also have more than one connection to dc power. To remove all electrical current from the device, ensure that all connections to dc power are disconnected at the dc power input terminals.



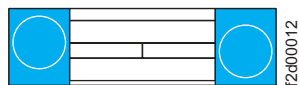
Use approved ESD procedures to prevent damage.

The error indicator must be lit on the power supply before you can safely remove the power cable.

Removing and replacing an ac power cable might result in the following effects:

- If you disconnect the ac power cable, it can cause a fault to be reported by the power supply.
- If the second power supply fails while the first power supply is not receiving power, the enclosure loses power and you can lose access to all data.

The power supplies are located on the left and right sides of the rear of the enclosure.



1. Pull the power cord from the power outlet on the wall.
2. Pull the power cord from the port on the power supply in the enclosure.

Chapter 18. Installing a resource

This section contains the steps that you must follow to replace or install a resource in your server or expansion enclosure. You can also follow the steps in this section if you are performing field upgrades.

You can replace or install the following resources in your server or expansion enclosure to repair a fault or other resource event:

- Disk drive module
- Front display panel
- Rear operator panel
- Power supply
- Processor card
- Battery backup unit
- System service card
- Fiber optic cables and SFPs
- Power cable

Important: When replacing resources in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

Installing the disk drive module

Complete this task to install or replace a disk drive module.



Use approved ESD procedures to prevent damage.

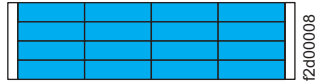
Attention: If you bring a disk drive module into the operating environment from an area that is outside the normal operating temperature of 20 - 25 degrees C (68 - 77 degrees F), allow the disk drive module time to acclimate to the operating environment. Remove the disk drive module from any shipping package, leave the disk drive module in the sealed plastic bag to prevent condensation from forming.

Important: When removing DDMs from an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

If you are installing additional storage, you must comply with the following rules:

- Update your license by submitting your Order Confirmation Code on the DSFA Web site and by obtaining and entering your new license upgrade key in the DS Storage Manager.
- Add DDMs in groups of four DDMs of the same capacity and speed.
- Add DDMs in a row, starting with the first DDM in the far left slot and working your way across the enclosure so that the fourth DDM is in the far right slot on the same row.

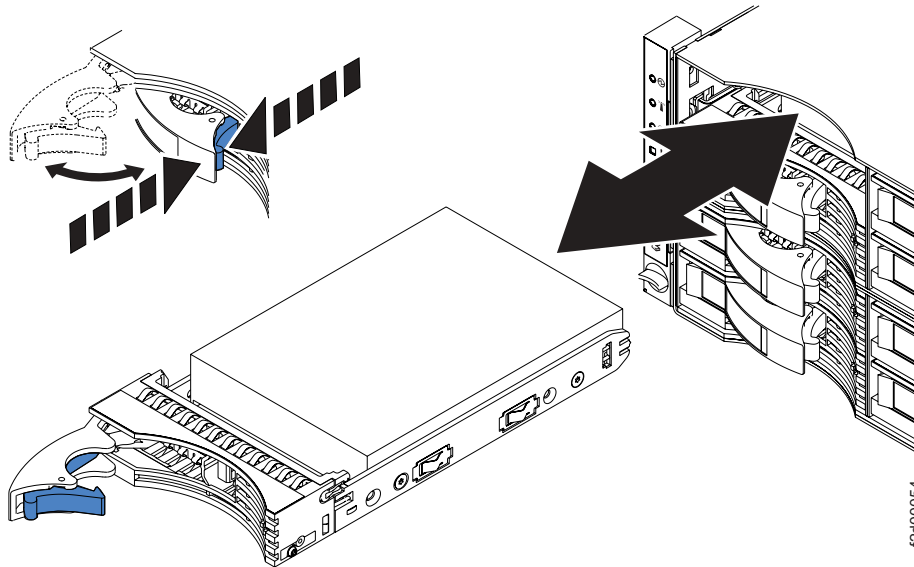
The disk drive modules are located in rows and columns on the front of the storage unit.



1. Remove the factory-sealed wrapping from the new disk drive module only when you are ready to install it.
2. Before installing the disk drive module, open the disk drive module handle by pressing the blue latch and pulling the handle open.
3. Align the disk drive module with the groove on the disk drive module bay and push it into its slot. The drive stops before it is fully seated. Ensure that the disk drive is properly aligned in a horizontal position. Failure to do so could result in physical damage to the drive or the drive component.
4. Push the disk drive module handle to the right until it is latched closed.
5. Verify that the front of the new disk drive module is aligned with the other disk drive modules.

The storage unit will automatically begin the process to bring the DDM online and rebuild the array.

These images show a disk drive module replacement procedure.



If necessary, you can use the DS Storage Manager to verify that all DDMs are operational.

Note: You cannot leave an empty disk drive module slot. You must insert either a replacement module or a disk drive module blank to prevent overheating the storage unit.

Installing the front display panel

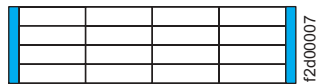
Complete this task to install or replace the front display panel or the right front bezel. If you are installing the front panel display after removing it for a servicing procedure, you can install it whether the system is powered off or powered on.



Use approved ESD procedures to prevent damage.

Important: When you replace the front display panel in an enclosure, ensure that all resources from a particular server or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

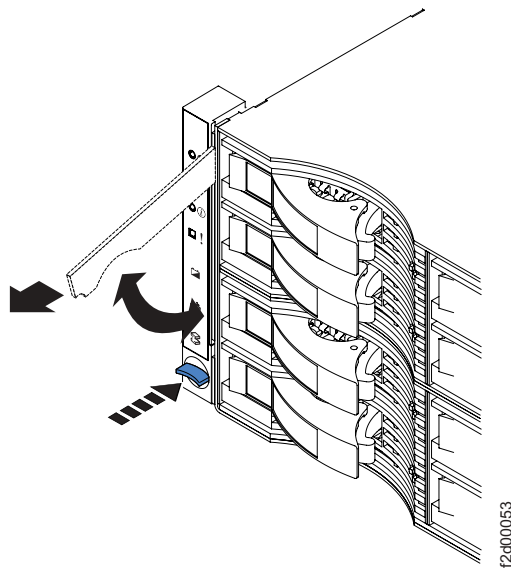
The front display panel and right front bezel are located on the left and right of the front of the enclosure, respectively.



To install the front panel display, perform the following steps:

1. Use the handle to align the top of the display panel with the empty slot. The top of the front display panel must fit over the metal support at the top of the slot at the same time that the back of the handle fits under the metal catch on the side of the slot.
2. Push the handle down and into the recessed slot so that it is flush with the front of the enclosure. This will lock the front display panel into position.

This image shows a front display panel replacement procedure.



Installing the power supply

Complete this task to install or replace the power supply, either when the system is powered off or powered on.

DANGER



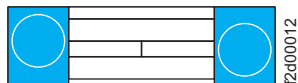
Hazardous voltage, current, or energy levels are present inside this resource.



Attention: You must replace the power supply within three minutes of removing the previous power supply. Loss of data access might occur as a result of excess heat if you do not immediately replace the power supply.

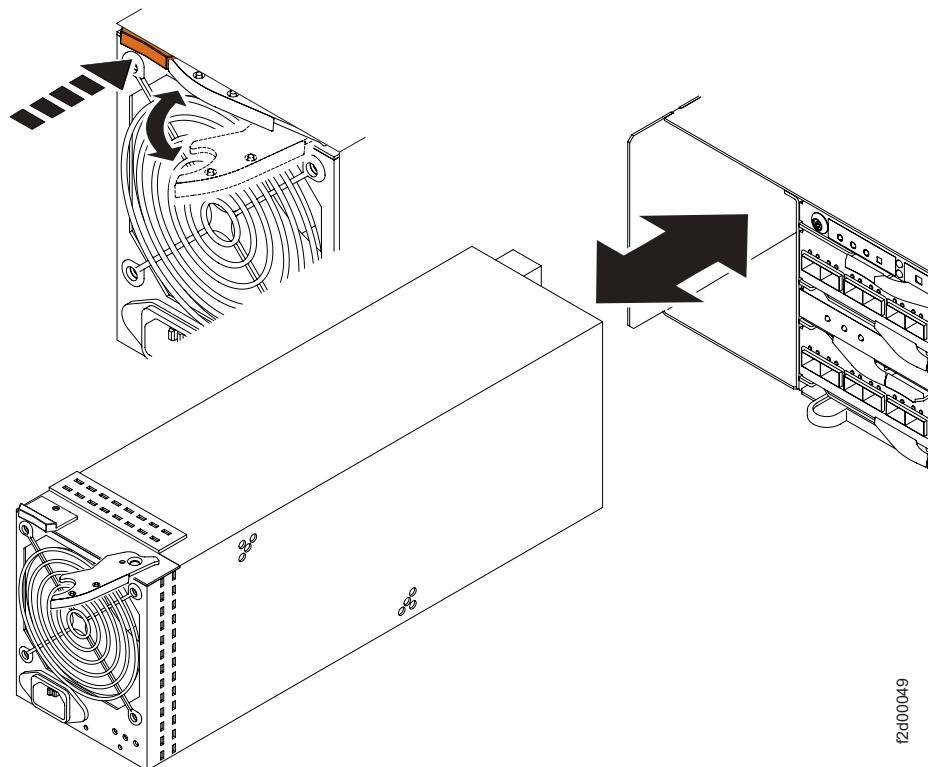
Important: When replacing a power supply in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

The power supplies are located on the right and left sides of the rear of the enclosure.



1. Grip the power supply with both hands and align the resource with the slot.
2. Using both hands, push the power supply into the slot until the handle mechanism stops the forward movement.
3. Push the handle in and toward the outer edge of the enclosure until the release button clicks. This inserts the remaining portion of the power supply into the slot.
4. Attach the power cable to the power supply.

These images show a power supply replacement procedure.



12d00049

Installing the rear operator panel

Complete this task to install or replace the rear operator panel, either when the system is powered off or powered on.



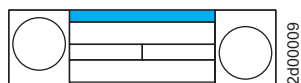
Use approved ESD procedures to prevent damage.

You must remove the previous rear operator panel before replacing a new panel.

Attention: You must replace the rear operator panel with a new operator panel. You cannot exchange operator panels between enclosures.

Important: When replacing a rear operator panel in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

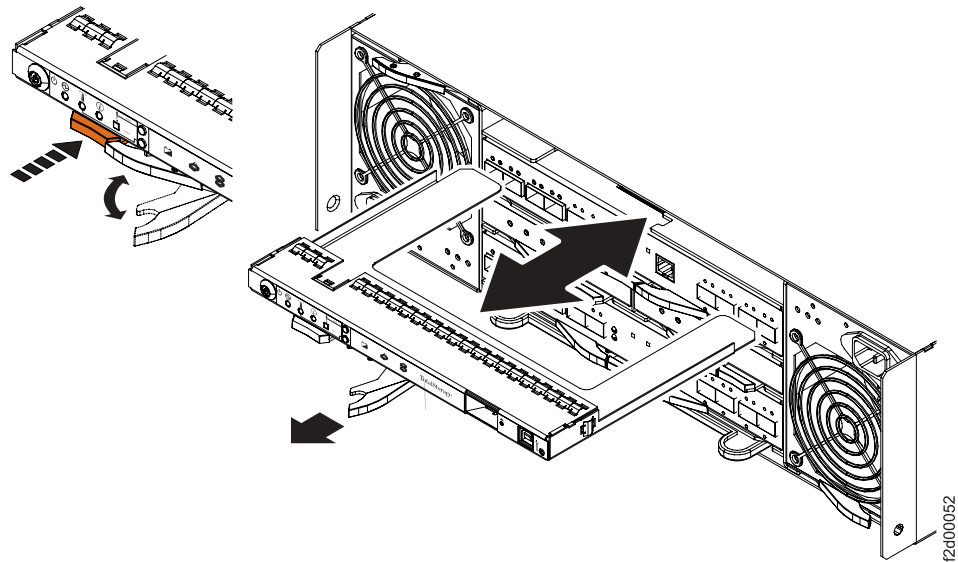
The rear operator panel is located at the top of the rear of the enclosure.



12d00009

1. Grip the rear operator panel with both hands and align the resource with the slot.
2. Using both hands, push the rear operator panel into the slot until the handle mechanism stops the forward movement.
3. Push the handle in and to the left until the release button clicks. This inserts the remaining portion of the rear operator panel into the slot.

These images show a rear operator panel replacement procedure.



Installing the battery backup unit

Complete this task to install or replace the battery backup unit, either when the system is powered off or powered on.

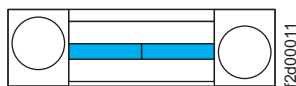
CAUTION:

The battery is a nickel metal hydride battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call.

You must wait a minimum of 45 minutes after the initial failure, as recorded in the Log details page, before replacing the battery backup unit.

Important: When replacing a battery backup unit in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure.

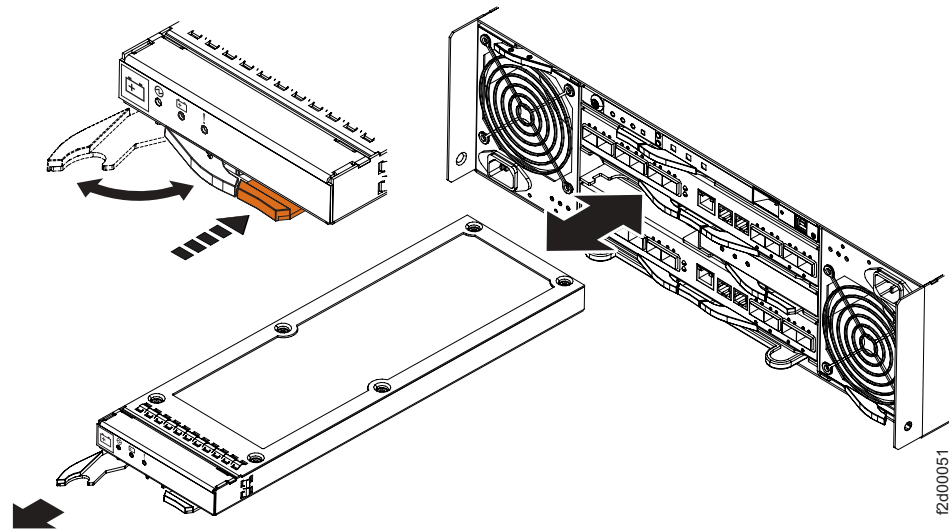
The battery backup units are located horizontally in the middle of the rear of the enclosure.



1. Grip the battery backup unit with both hands and align the resource with the slot.
2. Using both hands, push the battery backup unit into the slot until the handle mechanism stops the forward movement.
3. Push the handle in and to the right until the release button clicks. This inserts the remaining portion of the battery backup unit into the slot.

The battery backup unit automatically resumes its function after the batteries are fully charged.

These images show a battery backup unit replacement procedure.



Installing the processor card

Complete this task to install or replace the processor cards in a server or expansion enclosure, either when the system is powered off or powered on.



Use approved ESD procedures to prevent damage.

Important: When replacing a processor card in an enclosure, care should be taken to ensure that all resources from a particular server enclosure or expansion enclosure are reinstalled into the same physical enclosure and in the same location inside that enclosure. Ensure that you replace the fiber optic cables, and the Ethernet cable in the same ports that you removed them from.

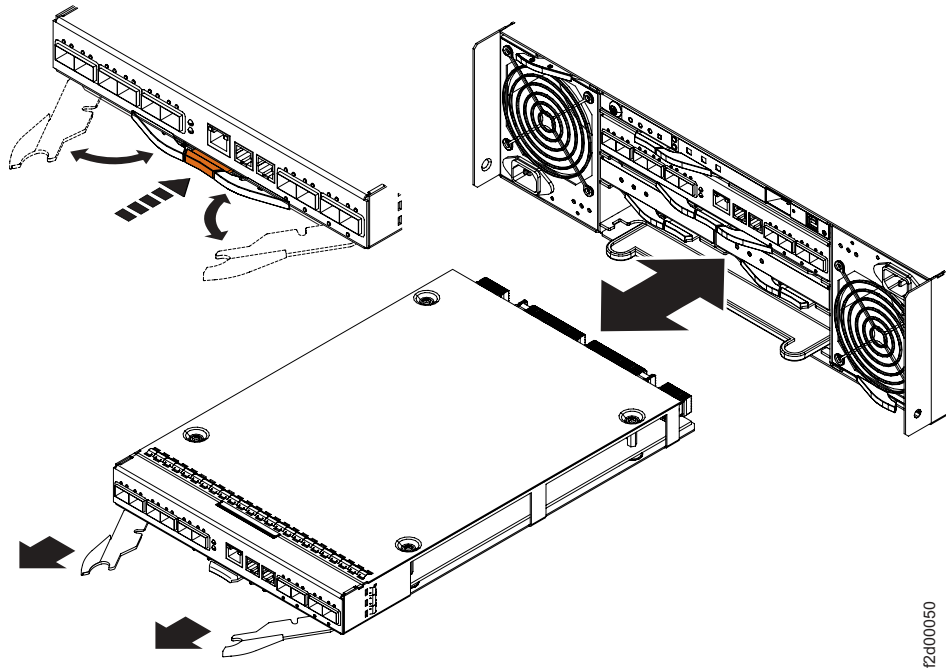
The processor cards are located in the rear of the enclosure. One of the cards is below the rear operator panel and above the battery backup units. The other card is located below the battery backup units and above the system service card.



In the case of a dual processor card replacement, you must replace the processor cards one at a time to ensure that at least one processor card is always operating in the enclosure. After you replace the first processor card, wait until you can access the enclosure using the DS Storage Manager before you remove and replace the second processor card. Do not remove both processor cards at the same time.

1. Grip the processor card with both hands to align the resource with the slot.
2. Using both hands, push the processor card into the slot until the handle mechanism stops the forward movement.
3. Push both handles in and towards the center of the enclosure at the same time until the release button clicks. This inserts the remaining portion of the processor card into the slot.

These images show a processor card replacement procedure.



After replacing the processor card, you must replace any fiber optic cables that you removed from the card. The cables must be replaced in the same ports that you removed them from. The processor card automatically begins the process to resume normal operation. This process can take up to 25 minutes.

Installing the system service card

Complete this task to install or replace the system service card.

The system service card is located in the rear of the enclosure, below all of the other resources.



1. Grip the system service card with both hands to align it with the empty slot.
2. Slide the system service card fully into the slot using the two blue tabs.

Installing the fiber optic cables and SFPs

Complete this task to install or replace fiber optic cables and small form factor pluggables (SFPs).

CAUTION:

This product may contain one or more of the following: CD-ROM, DVD-ROM, DVD-RAM, or laser module, which are Class 1 laser products. Please note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle.



Use approved ESD procedures to prevent damage.

Important: If you removed the fiber optic cables during a replacement procedure, you must replace the fiber optic cables in the same ports that you removed them from.

The fiber optic ports are located on the processor card in the enclosure.



1. Lift the wire or plastic tab and remove the protective cap from the SFP module.
2. Remove the protective cap from the SFP module port on the server enclosure.
3. Insert the SFP module into the SFP module port on the server enclosure.
4. Remove the protective caps from the fiber optic cable.
5. Insert the fiber optic cable into the SFP module.
6. Check to ensure that both the SFP module and fiber optic cable are properly seated in the port.

Installing the power cord

Complete this task to install or replace the power cord for your storage unit.

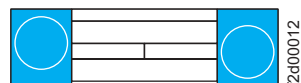
CAUTION:

The power-control button on the device does not turn off the electrical current supplied to the device. The device might also have more than one connection to dc power. To remove all electrical current from the device, ensure that all connections to dc power are disconnected at the dc power input terminals.



Use approved ESD procedures to prevent damage.

The power supplies are located on the left and right sides of the rear of the enclosure.



1. Insert the power cord into the port on the power supply in the enclosure.
2. Insert the power cord into the outlet on the wall. If possible, plug the two separate power supplies into two separate power distributions.

Chapter 19. Taking a resource offline

Complete this task to take a resource offline for a service action.

Your resource must be online before you can take it offline.

You cannot take a resource offline if it is currently in one of the following states:

- Quiescing (Going offline)
- Quiesced (Offline)
- Resuming (Coming online)

You must wait for the resource to enter a state that allows you to take it offline.

Note: These steps allow you to take a resource offline without a corresponding log entry. You can also take a resource offline from the Log entry details page in the DS Storage Manager.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Properties**.
2. Choose the storage complex that contains the resource that you are taking offline.
3. Choose the storage unit that contains the resource that you are taking offline.
4. Choose the enclosure that contains the resource that you are taking offline.
5. Choose the resource that you are taking offline.
6. Click on the Status tab to view status information for the selected resource.
7. Select the resource that you want to take offline by clicking on the selection field in the properties table.
8. Select **Take offline** from the drop down list above the properties table.
9. Confirm that you want to take the resource offline. This begins the process that quiesces the resource.
10. Use the **Refresh** button to view the status change for your selected resource. The resource has finished the offline process when the resource changes to a Prepared for service state.

You must replace the resource after removal or, if you did not remove the resource, bring the resource online. Leaving a resource offline for any period of time makes your system susceptible to additional fault or error events that could cause loss of operation or data.

Chapter 20. Powering off

Complete this task to turn off the power to a server enclosure and all attached expansion enclosures.

Perform these steps to turn off the power to a storage unit:

1. Ensure that all I/O operations are stopped.
2. Quiesce all hardware resources in the server enclosure.
3. Press and hold the power button that is located on the left side of the rear operator panel on the server enclosure for five seconds. The unit completes the power-off sequence to turn off the server enclosure and each of the attached expansion enclosures. The server enclosure controls the power-off sequence for the entire storage unit, including all of the expansion enclosures. Each expansion enclosure turns off the enclosed resources in the necessary order. A delay of several minutes can occur before the system fully turns off all of the enclosures, depending on how many attached expansion enclosures are connected.

The enclosure is completely powered off after the fans have stopped spinning, the dc LED indicator on the power supply is flashing, and the ac LED indicator on the power supply is a solid green light. The power-on LED indicators on both the rear operator panel and the front display panel flash intermittently after the enclosure is fully turned off.

CAUTION:

Do not remove the ac power cords from any enclosure while any of the fans are still spinning. You must wait until the complete power off sequence has finished before you remove the power cords. Failure to follow the correct power off procedure may cause loss of access to your data or the inability to successfully restart the DS6000.

Chapter 21. Bringing a resource online

Complete this task to bring a resource online.

The resource must be offline before you can bring it online.

You cannot bring the following resources online:

- Front display panel
- Rear operator panel

You cannot bring a resource online if it is currently in one of the following states:

- Online
- Resuming (Coming online)
- Quiescing (Going offline)

You must wait for the resource to enter a state that allows you to bring it online.

Note: These steps allow you to bring a resource online without a corresponding log entry. You can also bring a resource online from the Log entry details page in the DS Storage Manager.

1. In the navigation, select **Real-time manager** → **Monitor system** → **Properties**.
2. Choose the storage complex that contains the resource that you are bringing online.
3. Choose the storage unit that contains the resource that you are bringing online.
4. Choose the enclosure that contains the resource that you are bringing online.
5. Choose the resource that you are bringing online.
6. Click on the Status tab to view status information for the selected resource.
7. Select the resource that you want to bring online by clicking on the selection field in the properties table.
8. Select **Bring online** from the drop down list above the properties table. Click **Go**.
9. Confirm that you want to bring the resource online. This begins the process that resumes the resource.
10. Use the **Refresh** button to view the status change for your selected resource. The resource is has finished the online process when the resource changes to an online state.

Chapter 22. Identifying connected expansion enclosures

Complete this task to identify expansion enclosures that are connected to your server enclosure.

The light path Identify function allows you to visually identify the expansion enclosures that are connected to your server enclosure. Using the Identify function does not affect the performance of your storage unit.

1. Move to the rear operator panel of your server enclosure.
2. Press the **Identify** button that is located on the rear operator panel. The location LED indicator on the server enclosure flashes as the location indicators on the connected expansion enclosures enter a solid blue state.
3. Wait for the location indicator on the server enclosure to enter a solid blue (not flashing) state. Once the location indicators on all of the connected expansion enclosures are lit, the location indicator stops flashing and remains a solid blue.
4. Visually identify all of the expansion enclosures that have a solid blue location LED indicator lit on the front display panel. These are the expansion enclosures that are connected to your server enclosure.
5. Once you have identified all connected expansion enclosures and no longer need the location indicator lit, push the **Identify** button on the rear operator panel. The location LED indicator on the server enclosure flashes as the location indicators on the connected expansion enclosures turn off. The location indicator on the server enclosure turns off once all of the expansion enclosure location indicators have turned off.

Chapter 23. Setting a resource event reminder

Complete this task to set the remind function for a resource event.

A resource event must occur before you can set an event reminder.

Event reminders allow you to postpone, but not forget, repairing a resource event. For example, you might need to set a resource event reminder if you need to request a new resource to replace a failed resource.

Setting a resource event reminder does not resume resource operation in the case of a resource failure. If you do not replace the resource, additional faults or resource events can leave your system susceptible to data loss or loss of operation. Review the service effects for the failed resource to determine the potential impact of a failed resource.

1. Move to the rear of the server enclosure.
2. Push the **Remind** button located on the rear operator panel.

The system alert, fault on rear resource, and fault in external enclosure indicators on the front display panel and rear operator panel begin to flash.

If the system alert indicators on the front display panel and rear operator panel change from a flashing to a solid state, another resource event has occurred.

If you push the **Remind** button on the server enclosure, indicators on both the server enclosure and the expansion enclosure will flash. If you push the **Remind** button on the expansion enclosure, only the indicators on that expansion enclosure will flash.

Chapter 24. Attaching the ESD wrist strap

Complete this task to attach an electrostatic discharge (ESD) wrist strap.

When you wear the ESD wrist strap, ensure that the flexible grounding cord remains connected to you and to the frame of the machine.

Because this wrist strap has a high resistance (>1 megohm) resistor in series with the grounding clip, there is no danger to you. It discharges the static electricity from your body.

1. Connect the clip on the flexible grounding cord to an unpainted frame ground point on the rack.
2. Keep the strap on and connected while you touch, insert, or remove any ESD-sensitive part.

Chapter 25. Performing a warmstart

Complete this task to perform a warmstart on the storage unit.

CAUTION:

This task can only be performed with an administrator level user ID and password. Do not perform this task unless instructed to do so by IBM technical support.

1. In the navigation, select **Real-time manager** → **Manage hardware** → **Storage units**. On the Storage units — Main page, select a storage unit from the drop-down list.
2. In the **Select Action** drop-down list, select **Restricted Service Actions**, and then click **Go**. The Restricted Service Actions page is displayed.
3. Select **Reboot** from the drop-down list to reboot the selected storage unit.
4. Select the servers, enter your username and password, and then click **OK**.

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- You can operate features using the keyboard instead of the mouse.

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You can use keys or key combinations to perform operations and initiate menu actions that can also be done through mouse actions. You can navigate the IBM System Storage DS6000 information from the keyboard by using the shortcut keys for your browser or Home Page Reader. See your browser Help for a list of shortcut keys that it supports. See the following Web site for a list of shortcut keys supported by Home Page Reader: http://www-306.ibm.com/able/solution_offerings/keyshort.html

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