IBM Storwize V7000
Version 6.3.0

*Troubleshooting, Recovery, and
Maintenance Guide - Errata*

IBM

Introduction

This guide provides errata information that pertains to release 6.3.0 of the *IBM Storwize V7000 Troubleshooting, Recovery, and Maintenance Guide*.

This guide contains the corrections and additions on a per chapter basis. The chapter numbers in this guide correspond directly with the chapter numbers in the *IBM Storwize V7000 Troubleshooting, Recovery, and Maintenance Guide*, which is available as an online file. The information provided in these errata also applies to the Information Center content.

Who should use this guide

This errata should be used by anyone using the *IBM Storwize V7000 Troubleshooting, Recovery, and Maintenance Guide*. You should review the errata that is contained within this guide and note the details with respect to the copy of the *IBM Storwize V7000 Troubleshooting, Recovery, and Maintenance Guide* that was downloaded to your system.

Last update

This document was last updated: November 18, 2011.

Change history

The following revisions have been made to this document:

Table 1. Change history

Revision date	Sections modified
November 18, 2011	New publication

Chapter 7. Recovery procedures

This topic describes these recovery procedures: recover a system and back up and restore a system configuration.

Recovering from offline VDisks using the CLI

If a recovery procedure (T3 procedure) completes with offline volumes, you can use the command-line interface (CLI) to access the volumes.

If you have performed the recovery procedure, and it has completed successfully but there are offline volumes, you can perform the following steps to bring the volumes back online. Any volumes that are offline and are not thin-provisioned volumes are offline because of the loss of write-cache data during the event that led both nodes to lose their hardened data. These volumes might need additional recovery steps after the volume is brought back online.

Note: If you encounter errors in the error log after running the recovery procedure that are related to offline arrays, use the fix procedures to resolve the offline array errors before fixing the offline volume (VDisk) errors.

Perform the following steps to recover an offline volume after the recovery procedure has completed:

1. Delete all IBM FlashCopy® function mappings and Metro Mirror or Global Mirror relationships that use the offline volumes.
2. Run the **recovervdisk** or **recovervdiskbysystem** command.

   You can recover individual volumes by using the **recovervdisk** command. You can recover all the volumes in a clustered system by using the **recovervdiskbysystem** command.
3. Recreate all FlashCopy mappings and Metro Mirror or Global Mirror relationships that use the volumes.

Chapter 8. Removing and replacing parts

You can remove and replace field-replaceable units (FRUs) from the control enclosure or the expansion enclosure.

Attention: If your system is powered on and performing I/O operations, go to the management GUI and follow the fix procedures. Performing the replacement actions without the assistance of the fix procedures can result in loss of data or access to data.

Even though many of these procedures are hot-swappable, these procedures are intended to be used only when your system is not up and running and performing I/O operations. Unless your system is offline, go to the management GUI and follow the fix procedures.

Each replaceable unit has its own removal procedure. Sometimes you can find that a step within a procedure might refer you to a different remove and replace procedure. You might want to complete the new procedure before you continue with the first procedure that you started.

Remove or replace parts only when you are directed to do so.

Be careful when you are replacing the hardware components that are located in the back of the system that you do not inadvertently disturb or remove any cables that you are not instructed to remove.

Replacing a control enclosure chassis

This topic describes how to replace a control enclosure chassis.

Note: Ensure that you know the type of enclosure chassis that you are replacing. The procedures for replacing a control enclosure chassis are different from those procedures for replacing an expansion enclosure chassis.

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.

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Attention: Perform this procedure only if instructed to do so by a service action or the IBM support center. If you have a single control enclosure, this procedure requires that you shut down your system to replace the control enclosure. If you have more than one control enclosure, you can keep part of the system running, but you lose access to the volumes that are on the affected I/O group and any volumes that are in other I/O groups that depend on the drives that are in the affected I/O group. If the system is still performing I/O requests in all the I/O groups, schedule the replacement during a maintenance period or other time when the I/O can be stopped.

Be careful when you are replacing the hardware components that are located in the back of the system that you do not inadvertently disturb or remove any cables that you are not instructed to remove.

Ensure that you are aware of the procedures for handling static-sensitive devices before you remove the enclosure.

To replace a control enclosure chassis, perform the following steps:

1. If you are able to access either of the node canisters with the service assistant, record the machine type and model of the enclosure, the serial number of the enclosure, and the two WWNNs for the enclosure.
   - From the service assistant home page, open the location data for the node. Record the machine type and model (MTM), the serial number, WWNN 1 and WWNN 2 from the enclosure column.
   - If you are replacing the enclosure because neither node canister can start, retrieve this information after you have completed the replacement.
     a. Start the service assistant on one of the canisters.
     b. Go to the node location data on the home page.
     c. Record the machine type and model, the serial number, WWNN 1 and WWNN 2 from the node copy column.

       The machine type and model and the serial number are also shown on the labels at the front and back of the enclosure.

2. If the enclosure is still active, shut down the host I/O and the Metro Mirror and Global Mirror activity to all the volumes that depend on the affected enclosure.

   This statement applies to all volumes in the I/O group that are managed by this enclosure plus any volumes in other I/O groups that depend on the drives in the affected I/O group.

3. If your system contains a single I/O group and if the clustered system is still online, shut the system down by using the management GUI.
   a. From the management GUI, go to **Monitoring** > **Manage Device**.
   b. Select **Shut Down System** from the **Actions** menu.
   c. Wait for the shutdown to complete.

4. If your system contains more than one I/O group and if this I/O group is still online, shut down the I/O group by using the CLI.
   a. Identify the two nodes in the I/O group.
   b. To shut down each node, issue the following CLI command once for each of the two node canisters:

      `stopsystem -force -node <node ID>`
   c. Wait for the shutdown to complete.

5. Verify that it is safe to remove the power from the enclosure.

For each of the canisters, verify the status of the system status LED. If the LED is lit on either of the canisters, do not continue because the system is still online. Determine why the node canisters did not shut down in step 3 on page 5 or step 4 on page 5.

Note: If you continue while the system is still active, you risk losing the clustered system configuration and volume cache data that is stored in the canister.

6. Turn off the power to the enclosure using the switches on the power supply units.
7. Record which data cables are plugged into the specific ports. The cables must be inserted back into the same ports after the replacement is complete; otherwise, the system cannot function properly.
8. Disconnect the cable retention brackets and the power cords from the power supply units.
9. Disconnect the data cables for each canister.
10. Remove the power supply units from the enclosure.
11. Remove the canisters from the enclosure. Record the location of each canister. They must be inserted back into the same location in the new enclosure.
12. Remove all the drives and blank drive assemblies from the enclosure. Record the location for each drive. They must be inserted back into the same location in the new enclosure.
13. Remove both enclosure end caps from the enclosure. Keep the left end cap because it is used again.
14. Remove the clamping screws that attached the enclosure to the rack cabinet.
15. Remove the enclosure chassis from the front of the rack cabinet and take the chassis to a work area.
16. Install the new enclosure chassis in the rack cabinet.
17. Remove the end caps from the new enclosure and install the clamping screws that attach the enclosure to the rack cabinet.
18. Replace the end caps. Use the new right end cap and use the left end cap that you removed in step 13.

    Using the left end cap that you removed preserves the model and serial number identification.
19. Reinstall the drives in the new enclosure. The drives must be inserted back into the same location from which they were removed on the old enclosure.
20. Reinstall the canisters in the enclosure. The canisters must be inserted back into the same location from which they were removed on the old enclosure.
21. Install the power supply units.
22. Reattach the data cables to each canister using the information that you recorded previously.

    Note: The cables must be inserted back into the same ports from which they were removed on the old enclosure; otherwise, the system cannot function properly.
23. Attach the power cords and the cable retention brackets to the power supply units.
24. Write the old enclosure machine type and model (MTM) and serial number on the repair identification (RID) tag that is supplied. Attach the tag to the left flange at the back of the enclosure.

25. Turn on the power to the enclosure using the switches on the power supply units.

    The node canisters boot up. The fault LEDs are on because the new enclosure has not been set with the identity of the old enclosure. The node canisters report that they are in the wrong location.

    a. Connect to the service assistant on one of the node canisters to configure the machine type and model, serial number, and WWNNs that are stored in the enclosure. If you have replaced a node canister, connect to the canister that has not been replaced.

       You can connect using the previous service address. However, it is not always possible to maintain this address. If you cannot connect through the original service address, attempt to connect using the default service address. If you still cannot access the system, see the topic that contains information about connecting to the service assistant.

    b. Use the **Configure enclosure** panel.

    c. Select the options to **Update WWNN 1**, **Update WWNN 2**, **Update the machine type and model**, and **Update the serial number**. Do not update the system ID. Use the node copy data for each of the values. Check that these values match the values that you recorded in step 1 on page 5.

       If you were not able to record the values, use the node copy values only if none of them have all zeroes as their value. If any of the node copy values are all zeroes, connect the service assistant to the other node canister and configure the enclosure there. If you still do not have a full set of values, contact IBM support.

       After you modify the configuration, the node attempts to restart.

       Note: There are situations where the canisters restart and report critical node error 508. If the node canisters fail to become active after they restart when the enclosure is updated, check their status by using the service assistant. If both node canisters show critical node error 508, use the service assistant to restart the nodes. For any other node error, follow the procedure for fixing node errors. To restart a node from the service assistant, perform the following steps:

       1) Log on to the service assistant.
       2) From the home page, select the node that you want to restart from the **Changed Node List**.
       3) Select **Actions** > **Restart**.

    d. The system starts and can handle I/O requests from the host systems.

       Note: The configuration changes that are described in the following steps must be performed to ensure that the system is operating correctly. If you do not perform these steps, the system is unable to report certain errors.

26. Start the management GUI and select **Monitoring** > **System Details**. You see an additional enclosure in the system list because the system has detected the replacement control enclosure. The original control enclosure is still listed in its configuration. The original enclosure is listed with its original enclosure ID. It is offline and managed. The new enclosure has a new enclosure ID. It is online and unmanaged.

27. Select the original enclosure in the tree view.

    Verify that it is offline and managed and that the serial number is correct.

28. From the **Actions** menu, select **Remove enclosure** and confirm the action. The physical hardware has already been removed. You can ignore the messages about removing the hardware. Verify that the original enclosure is no longer listed in the tree view.

29. Add the new enclosure to the system.

    a. Select the enclosure from the tree view.

    b. From the **Actions** menu, select **Add Control and Expansion Enclosures**.

    c. Because you have already added the hardware, select **Next** on the first panel that asks you to install the hardware. The next panel shows the unmanaged new enclosure.

    d. Follow the steps in the wizard. The wizard changes the control enclosure to `Managed`.

    e. Select the enclosure and add it to the system.

30. Select the new enclosure in the tree view and verify that it is now online and managed.

31. Change the enclosure ID of the replaced enclosure to that of the original enclosure. From the **Enclosure ID** field, select the ID value of the original enclosure.

32. Check the status of all volumes and physical storage to ensure everything is online.

33. Restart the host application and any FlashCopy activities, Global Mirror activities, or Metro Mirror activities that were stopped.

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