Dell PowerStore

Power Down and Reboot Procedures Guide

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DELL Technologies

Notes, cautions, and warnings

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

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

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

Preface

As part of an improvement effort, revisions of the software and hardware are periodically released. Some functions that are described in this document are not supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information about product features. Contact your service provider if a product does not function properly or does not function as described in this document.

NOTE: PowerStore X model customers: For the latest how-to technical manuals and guides for your model, download the *PowerStore 3.2.x Documentation Set* from the PowerStore Documentation page at dell.com/powerstoredocs.

Where to get help

Support, product, and licensing information can be obtained as follows:

- **Product information**—For product and feature documentation or release notes, go to the PowerStore Documentation page at dell.com/powerstoredocs.
- **Troubleshooting**—For information about products, software updates, licensing, and service go to Dell Support and locate the appropriate product support page.
- **Technical support**—For technical support and service requests, go to Dell Support and locate the **Service Requests** page. To open a service request, you must have a valid support agreement. Contact your Sales Representative for details about obtaining a valid support agreement or to answer any questions about your account.

1

Introduction

Use the procedures in this document to power off or reboot your PowerStore appliances, nodes, or cluster gracefully. As part of a robust disaster recovery plan, it is recommended that you print and follow this procedure to test the planned shutdown and restart procedures.

Topics:

Power control procedure considerations

Note the following before you get started:

- Powering off a node, appliance, or cluster can take several minutes to complete.
- In a true emergency power off situation, turn the cabinet power switches to the off position to immediately remove power from the all cabinet components.
- Working with hardware may cause electrostatic discharge that could damage your hardware. Before working with any hardware, take precautions around handling replaceable units. See Safety precautions for handling replaceable units.
- If you are relocating or replacing hardware, to help identify associated enclosures when you are ready to cable and power on:
  - Ensure that you make a note of the cabling between enclosures and the appliances. If you used cable labels at the time of initial installation, reconnecting the cables is easier.
  - Ensure that you also record the Dell Service Tag of each enclosure in your cluster.
- Nodes in the appliance power on into the same mode they were in before the appliance was powered off. If a node powers on in service mode:
  1. Log in to the appliance from an SSH client.
  2. Run the `svc_rescue_state clear` command to clear the boot mode.
  3. Run the `svc_node reboot` command to reboot the node. Once rebooted, the node returns to normal mode.

  For more information about the service scripts, see the *PowerStore Service Scripts Guide*.
- If both nodes in an appliance reboot in service mode, always return Node A to normal mode first to avoid management software conflicts. After Node A is operating normally, you can return Node B to normal mode.
- Before powering down an appliance with metro volumes, ensure that the role of the metro volumes on the appliance are all set to nonpreferred. For information about setting metro volume roles, see the *Protecting Your Data* guide.

Power control procedures preview

CAUTION: Do not power off by pulling cables from the back of the appliance to initiate a shutdown sequence. Use PowerStore Manager or a service script to perform all graceful shutdown operations.

The following table provides a preview of the steps that are required to power off, power on, or reboot the relevant component in your cluster:

Table 1. Power control procedures preview

Component	Action	Procedure
Node	Power off	Use PowerStore Manager or run a service script.
	Power on	• If the node was removed from the chassis, reseat the node into the chassis, and reconnect its power cable. • If the node was not removed from the chassis, run a service script.
	Reboot	Use PowerStore Manager or run a service script.

Table 1. Power control procedures preview (continued)

Component	Action	Procedure
Appliance	Power off	Use PowerStore Manager or run a service script.
	Power on	If the nodes or expansion enclosures were removed from the chassis, reseat the expansion enclosures and nodes. Reconnect power cables in the right order.
Cluster	Power off	Use PowerStore Manager or run a service script.
	Power on	If the nodes or expansion enclosures were removed from the chassis, reseat the expansion enclosures and nodes. Reconnect power cables in the right order.

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Power control procedures

This chapter contains the following topics:

Topics:

Powering off procedures for PowerStore node

This section includes the following procedures:

Power off a node using PowerStore Manager

Prerequisites

Obtain the following information:

- Management IP address of the cluster to log in to PowerStore Manager.
- PowerStore Manager user account credentials with administrator privileges and knowledge of the service account credentials.

NOTE: Do not power off or reboot a node if the peer node is not operating normally. If the peer node is experiencing any major issues, associated alerts and events appear in PowerStore Manager.

Also, to avoid service interruptions, ensure that there are sufficient and healthy paths from all connected hosts to the peer node.

About this task

NOTE: If you are unable to access PowerStore Manager, see Power off a node using a service script.

NOTE: TLC flash drives retain data for up to 90 days while powered off. Data corruption may occur if the drives are powered off for more than 90 days or if they are stored in temperatures above 40° C (104° F).

NOTE: QLC flash drives retain data for up to 30 days while powered off. Data corruption may occur if the drives are powered off for more than 30 days or if they are stored in temperatures above 40° C (104° F).

Steps

1. Under **Hardware**, select the appliance that includes the node you want to power off.
2. On the **Appliance Details** page, select the **Components** card.
3. On the **Components** card, under **Internal View**, select the node that you want to power off.
4. Under **More Actions**, select **Power Down**.
5. On the confirmation prompt, enter the service password, and then click **Power Down**.

Next steps

To verify that the node has powered off, check the status of the LEDs in the rear of the chassis. Other than the LEDs for the power supply unit, management port, and service port, all LEDs on the node must be OFF. The Unsafe to Remove LED on the active or peer node is ON.

Power off a node using a service script

Prerequisites

Obtain the following information:

- Management IP address of the appliance that contains the node. In PowerStore Manager, go to **Settings** > **Networking** > **Network IPs** > **Management**. Review the **Management IPs** table to identify the management IP address associated with the appliance.
- Service account credentials

NOTE: Do not power off or reboot a node, if the peer node is not operating normally. If the peer node is experiencing any major issues, associated alerts and events appear in PowerStore Manager.

Also, to avoid service interruptions, ensure that there are sufficient and healthy paths from all connected hosts to the peer node.

About this task

NOTE: TLC flash drives retain data for up to 90 days while powered off. Data corruption may occur if the drives are powered off for more than 90 days or if they are stored in temperatures above 40° C (104° F).

NOTE: QLC flash drives retain data for up to 30 days while powered off. Data corruption may occur if the drives are powered off for more than 30 days or if they are stored in temperatures above 40° C (104° F).

Steps

1. Launch an SSH client, and connect to the appliance using the management IP address.

   NOTE: External SSH management access must be enabled on the appliance.

2. Enter the username and password that is associated with the service account, and log in.

   The login prompt indicates the node that you are logged into. For example, the letter `"A"` in the prompt `[SVC:user@DST5467-A~]$` indicates that you are logged into node A.

3. Based on the node you are logged into, run one of the following commands:
   - `svc_node shutdown local` to power off the node you are logged into.
   - `svc_node shutdown peer` to power off the peer node.

Next steps

To verify that the node has powered off, check the status of the LEDs in the rear of chassis. Other than the LEDs for the power supply unit, management port, and service port, all LEDs on the node must be OFF. The Unsafe to Remove LED on the active or peer node is ON.

Powering on procedures for PowerStore node

This section includes the following procedures:

- Power on a node using a service script
- Power on a node by reseating the node

Power on a node using a service script

Prerequisites

Obtain the following information:

- Management IP address of the appliance that contains the node. In PowerStore Manager, go to **Settings** > **Networking** > **Network IPs** > **Management**. Review the **Management IPs** table to identify the management IP address associated with the appliance.
- Service account credentials

About this task

Use the following procedure to power on a node in scenarios such as:

- You are remote and cannot reseat the node.
- The node was not removed from the chassis.
- The embedded module, I/O module, or 4-port card were replaced.

Steps

1. Launch an SSH client, and connect to the appliance using the management IP address. Since only the peer node is powered on, you are connected directly to the peer node of the appliance.
2. Enter the username and password that is associated with the service account, and log in.
3. Run the following command:

   ```
   svc_node power_on
   ```

4. Wait for the node to power on.

   NOTE: It may take several minutes for the node to power on.

Power on a node by reseating the node

About this task

Use the following procedure to power on a node after it was removed from the chassis:

Steps

1. Reseat the node into the chassis.

   The node powers on automatically.
2. Reconnect the power cable.
3. Wait for the node to complete powering on.

Rebooting procedures for a PowerStore node

This section includes the following procedures:

- Reboot a node using PowerStore Manager
- Reboot a node using a service script

Reboot a node using PowerStore Manager

Prerequisites

Obtain the following information:

- Management IP address of the cluster to log in to PowerStore Manager.
- PowerStore Manager user account with administrator privileges.

NOTE: Do not power off or reboot a node if the peer node is not operating normally. If the peer node is experiencing any major issues, associated alerts and events appear in PowerStore Manager.

To avoid service interruptions, ensure that there are sufficient and healthy paths from all connected hosts to the peer node.

About this task

Use the following procedure to reboot a node using PowerStore Manager:

Steps

1. Under **Hardware**, select the appliance that includes the node you want to reboot.
2. On the **Appliance Details** page, select the **Components** card.
3. On the **Components** card, under **Rear View**, expand **Base Enclosure**, and then select the node that you want to reboot.
4. Under **More Actions**, select **Reboot**.
5. On the confirmation prompt, select **Confirm you want to reboot the node**, and then click **Reboot**.

Reboot a node using a service script

Prerequisites

Obtain the following information:

- Management IP address of the appliance that contains the node. In PowerStore Manager, go to **Settings** > **Networking** > **Network IPs** > **Management**. Review the **Management IPs** table to identify the management IP address associated with the appliance.
- Service account credentials

NOTE: Do not power off or reboot a node, if the peer node is not operating normally. If the peer node is experiencing any major issues, associated alerts and events appear in PowerStore Manager.

Also, to avoid service interruptions, ensure that there are sufficient and healthy paths from all connected hosts to the peer node.

About this task

Use the following procedure to reboot a node using a service script:

Steps

1. Launch an SSH client, and connect to the appliance using the management IP address.
2. Enter the username and password for the service account to log in.

   The login prompt indicates the node that you are logged into. For example, the letter `"A"` in the prompt `[SVC:user@FNM12345678910-A~]$` indicates that you are logged into node A.
3. Based on the node you are logged into, run one of the following commands:
   - `svc_node reboot local` to reboot the node you are logged into.
   - `svc_node reboot peer` to reboot the peer node.

   For more information, see the *PowerStore Service Scripts Guide*.

Power off an appliance

Prerequisites

- Do not power off the appliance if you are replacing a hardware component. Identify the node that includes the faulted hardware component, and power off only that node. For more information, see Power off a node using PowerStore Manager.
- Powering off an appliance results in the mapped hosts losing access to the data on the appliance. Before you begin, ensure that you temporarily disconnect host access from all storage resources.
- Obtain the following information:

- Management IP address of the appliance. In PowerStore Manager, go to **Settings** > **Networking** > **Network IPs** > **Management**. Review the **Management IPs** table to identify the management IP address associated with the appliance.
- Service account credentials
- Service tags of the appliance
- If applicable, service tags of the associated expansion enclosures

About this task

Use the following procedure to power off a single appliance. To power off all of the appliances in a cluster, see Power off a cluster using PowerStore Manager.

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NOTE: QLC flash drives retain data for up to 30 days while powered off. Data corruption may occur if the drives are powered off for more than 30 days or if they are stored in temperatures above 40° C (104° F).

Steps

1. Log in to PowerStore Manager.
2. Determine the primary appliance by going to **Settings** > **Cluster** > **Properties**.
3. If the appliance you are shutting down is the primary appliance:
   a. Launch an SSH client, and connect to the appliance using the management IP address.
   b. Enter the username and password that is associated with the service account, and log in.
   c. Run the following command to determine which nodes are eligible to become the new primary node:

      ```
      svc_cluster_management GetClusterStatus
      ```

   d. Run the following command to specify which appliance you want to become the new primary appliance:

      ```
      svc_cluster_management MovePrimaryAppliance -n <ID number of new primary node>
      ```

4. In PowerStore Manager, under **Hardware**, select the appliance that you want to power off.
5. Under **More Actions**, select **Power Down**.
   The **Validation** window opens.
6. Review any errors, warnings, and recommendations. Once the appliance passes all of the validation checks, click **Next**.
   The **Active Objects** window opens.
7. Review the list of objects on the appliance that had I/O activity during the last five minutes.
8. Click **Next**.
   The **Confirm** window opens.
9. Enter the service password, and click **Power Down**.
10. Check the status of the LEDs in the rear of chassis to verify that the appliance has powered off. Other than the LEDs for the power supply unit, management port, and service port, all other LEDs on the appliance must be OFF.
11. Wait five minutes, and then disconnect the power cables from the base enclosure.
12. Disconnect the power cables from any associated expansion enclosures.

Power on an appliance

About this task

Use the following procedure to power on an appliance:

Steps

1. If nodes were removed, reseat the nodes into the base enclosure chassis.
2. If applicable, ensure that expansion enclosures are also reseated into the cabinet.
3. If applicable, reconnect the power cables to each associated expansion enclosure in an ascending order, such as the following:
   - Expansion enclosure 0

- Expansion enclosure 1
- Expansion enclosure 2

The power status LEDs on each expansion enclosure turn on when the power cable is connected.

4. Reconnect the power cables to node A first, and then node B.
   The Node Power LEDs on both nodes turn on when the power cable is connected.

Power off a cluster using PowerStore Manager

Prerequisites

- Powering off a cluster results in the mapped hosts losing access to the data on the cluster. Before you begin, ensure that you temporarily disconnect host access from all storage resources.
- Check if any VMs are using the storage from the cluster. It is recommended to power off the VMs before powering off the cluster.
- When the cluster is powered off, you have no access to the UI, API, or CLI interfaces. Print the power on instructions to ensure that you have the information you require to power on the cluster in a specific order. You can also find these instructions on dell.com/powerstoredocs.
- Obtain the following information:
  - Management IP address of the cluster
  - Service account credentials
  - Site ID
  - Service tags of the appliances
  - If applicable, service tags of the associated expansion enclosures

About this task

NOTE: TLC flash drives retain data for up to 90 days while powered off. Data corruption may occur if the drives are powered off for more than 90 days or if they are stored in temperatures above 40° C (104° F).

NOTE: QLC flash drives retain data for up to 30 days while powered off. Data corruption may occur if the drives are powered off for more than 30 days or if they are stored in temperatures above 40° C (104° F).

Steps

1. In PowerStore Manager, select the **Settings** icon, and then select **Power Down** in the **Cluster** section.
2. Click **Power Down Cluster**.
   The **Validation** window opens.
3. Click **Perform validation**.
4. Review any errors, warnings, and recommendations. If the cluster passes all the validation checks, click **Next**. If there are remaining errors that can safely be ignored, select **Ignore errors and proceed, regardless of possible data loss**, and then click **Next**.
   The **Active Objects** window opens.
5. Review the list of objects on the appliance that had I/O activity during the last five minutes.
6. Click **Next**.
   The **Confirm** window opens.
7. Enter the service password, and click **Power Down**.
8. Check the status of the process by looking at the Node Power LEDs. The power off process is complete when the Node Power LEDs for all nodes in the cluster are off.
9. After confirming that the cluster has shut down, disconnect the power cables from both nodes in one of the base enclosures in the cluster, if required. Wait a few seconds and confirm that all remaining LEDs have turned off.
10. Disconnect the power cables from each of the associated expansion enclosures to power them down, if required.
11. If your cluster has more than one appliance, repeat the previous two steps to disconnect power from the remaining appliances in the cluster.

Power on a cluster

About this task

Use the following procedure to power on a cluster:

Steps

1. If nodes were removed, reseat the nodes into the relevant base enclosure chassis.
2. If applicable, for each appliance in the cluster, ensure that expansion enclosures are also reseated into the cabinet.
3. If applicable, for each appliance in the cluster, reconnect the power cables to each expansion enclosure in the following order:
   - Expansion enclosure 0
   - Expansion enclosure 1
   - Expansion enclosure 2

   The power status LEDs on each expansion enclosure turns on when the power cable is connected.
4. For each appliance, reconnect the power cables to node A first, and then node B.

   The Node Power LED on each node turns on when the power cable is connected.

A

Safety precautions for handling replaceable units

Review these safety considerations before replacing any parts to avoid damage to your system.

Topics:

Handling replaceable units

This section describes the precautions that you must take and the general procedures that you must follow when removing, installing, and storing any replaceable unit.

Avoid electrostatic discharge (ESD) damage

When replacing or installing hardware units, you can inadvertently damage the sensitive electronic circuits in the equipment by simply touching them.

Electrostatic charge that has accumulated on your body discharges through the circuits. If the air in the work area is very dry, run a humidifier in the work area to help decrease the risk of ESD damage.

Follow these procedures to prevent equipment damage:

- Provide enough room to work on the equipment.
- Clear the work site of any unnecessary materials or materials that naturally build up electrostatic charge, such as foam packaging, foam cups, cellophane wrappers, and similar items.
- Do not remove replacement or upgrade units from their antistatic packaging until you are ready to install them.
- Before you begin service, gather the ESD kit and all other materials you need.
- Once servicing begins, avoid moving away from the work site; otherwise, you may build up an electrostatic charge.
- Use ESD anti-static gloves or an ESD wristband (with strap). If using an ESD wristband with a strap:
  - Attach the clip of the ESD wristband to the ESD bracket or bare metal on a cabinet or rack or enclosure.
  - Wrap the ESD wristband around your wrist with the metal button against your skin.
  - If a tester is available, test the wristband.
- If an emergency arises and the ESD kit is not available, follow the procedures in Emergency Procedures (without an ESD kit).

Emergency procedures (without an electrostatic discharge kit)

In an emergency when an electrostatic discharge (ESD) kit is not available, use the following precautions to reduce the possibility of an electrostatic discharge. Ensure that your body and the subassembly are at the same electrostatic potential.

NOTE: These precautions are not a substitute for the use of an ESD kit. Follow them only in an emergency.

- Before touching any unit, touch a bare (unpainted) metal surface of the cabinet, rack, or enclosure.
- Before removing any unit from its anti-static bag, place one hand firmly on a bare metal surface of the cabinet, rack or enclosure, and simultaneously, pick up the unit while it is still sealed in the anti-static bag. Simultaneously, do not move around the room or touch other furnishings, personnel, or surfaces until you have installed the unit.
- When you remove a unit from the anti-static bag, avoid touching any electronic components and circuits on it.
- If you must move around the room or touch other surfaces before installing a unit, first place the unit back in the anti-static bag. When you are ready again to install the unit, repeat these procedures.

Remove, install, or store replaceable units

Use the following precautions when removing, handling, or storing replaceable units:

WARNING: Some replaceable units have most of their weight in the rear of the component. Ensure that the backend of the replaceable unit is supported while installing or removing it. Dropping a replaceable unit could result in personal injury or damage to the equipment.

WARNING: A sudden jar drop, or even a moderate vibration can permanently damage some sensitive replaceable units.

NOTE: For a module that must be installed into a slot in an enclosure, examine the rear connectors on the module for any damage before attempting its installation.

- Do not remove a faulted replaceable unit until you have the replacement available.
- When handling replaceable units, avoid electrostatic discharge (ESD) by wearing ESD anti-static gloves or an ESD wristband with a strap.
- Avoid touching any exposed electronic components and circuits on the replaceable unit.
- Never use excessive force to remove or install a replaceable unit. Take time to read the instructions carefully.
- Store a replaceable unit in the anti-static bag and the specially designed shipping container in which you received it. Use the anti-static bag and special shipping container when you need to return the replaceable unit.
- Replaceable units must acclimate to the operating environment before applying power. This requires the unpackaged component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation. Ensure that the replaceable unit has thermally stabilized to the operating environment.
- Front bezels should always be attached to ensure EMI compliance. Ensure that you reattach the bezel after replacing a component.
- Each I/O module or drive slot should contain a component or filler panel to ensure proper air flow throughout the system.

Unpack a part

Use these best practices to unpack a part.

Steps

1. Wear ESD gloves or attach an ESD wristband to your wrist and the enclosure in which you are installing the part.
2. Unpack the part and place it on a static-free surface.
3. If the part is a replacement for a faulted part, save the packing material to return the faulted part.

B

Maintenance windows

Learn how to enable and disable maintenance windows. During a maintenance window, actions such as unplugging cables and swapping out components will not erroneously alert Customer Support of an outage.

Topics:

Enable a maintenance window

Enable a maintenance window before performing procedures that might erroneously notify Customer Support of problems with the system.

Steps

1. Select the **Settings** icon, and then select **Maintenance Window** in the **Support** section.
2. Select the appliance for which you want to enable a maintenance window and click **Enable/Modify**.
3. In the Maintenance Window Duration field, type the number of days and hours for the maintenance window duration.

   NOTE: Specify a time period that is longer than the time it takes to complete the procedure.

4. Click **Apply**.

Results

- The system displays a "Maintenance window was successfully enabled" message that is highlighted in green.
- The Status column shows "Enabled."
- The End Time (Cluster Time) column shows the date and time when the system will re-enable support notifications for the appliance.
- Under **Settings** > **Support**, the system shows "Enabled" next to **Maintenance Window**.

Disable a maintenance window

Disable a maintenance window after completing a procedure that might have erroneously notified Customer Support of problems with the system.

Steps

1. Select the **Settings** icon, and then select **Maintenance Window** in the **Support** section.
2. Select the appliance for which you want to disable the maintenance window and click **Disable**.
3. Click **Apply**.

Results

- The system displays a "Maintenance window was disabled successfully" message that is highlighted in green.
- The Status column shows "Disabled."
- Under **Settings** > **Support**, the system no longer shows "Enabled" next to **Maintenance Window**.