DELL PowerStore Power Down and Reboot User Guide

Dell EMC PowerStore
Power Down and Reboot Procedures Guide
Version 3.x

Contents

PowerStore Power Down and Reboot

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.

Preface

NOTE: PowerStore OS 3.0.0 supports PowerStore T models only.
NOTE: PowerStore x200 models are available as PowerStore T only.
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.
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 **https://www.dell.com/powerstoredocs**.
- Troubleshooting

  For information about products, software updates, licensing, and service, go to **https://www.dell.com/support** and locate the appropriate product support page.
- Technical support

  For technical support and service requests, go to **https://www.dell.com/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.
- Documentation for older versions

  For documentation of the older PowerStore versions, go to the PowerStore Documentation page at **https://www.dell.com/powerstoredocs**.

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
- Power control procedures preview

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 on page 20.
- 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.

- A PowerStore X model appliance consists of two ESXi host nodes (node A and node B), running VMware ESXi version 7.0.3, and a controller VM on each that runs the PowerStore operating environment. Powering off a PowerStore X model node or cluster requires operations in the associated VMware vCenter server. See the VMware documentation for more information about the vCenter server commands.
- 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 s v c _ r e s c u e _ s t a t e c l e a r command to clear the boot mode.
  3. Run the s v c _ n o d e r e b o o t command.

  ○ For a PowerStore T model node, this command reboots the node itself.

  ○ For a PowerStore X model node, only the PowerStore controller VM gets rebooted.

  Once rebooted, the node returns to normal mode.

  NOTE: The s v c _ n o d e service script, with r e b o o t and s h u t d o w n arguments, is typically used in the context of rebooting or powering off a PowerStore T model node.

  Use the VMware vCenter server commands to reboot or power off a PowerStore X model node. In PowerStore X model nodes, running the s v c _ n o d e service script with r e b o o t or s h u t d o w n arguments only affects the PowerStore controller VM.

  Unless specifically directed by your service provider, for PowerStore X model appliances, use the s v c _ n o d e service script only for the following purposes:

  ○ Go out of service mode (r e b o o t argument).

  ○ Power on the node (p o w e r _ o n argument).

  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 non-preferred. Refer to the Protecting Your Data guide for details about setting metro volume roles.

  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 or up the relevant component in your cluster:

  Table 1. Power control procedures preview

Component	Action	PowerStore T model	PowerStore X model
	Power off	Use PowerStore Manage r. Or Run a service script.	Use VMware vCenter set ‘der.

Node	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.	•If the node was removed from the chassis, reseat the node into the chassis, reconnect its power cable and use VMware vCenter server. •If the node was not removed from the chassis, run a service script and use VMware vCenter server.
	Reboot	Use PowerStore Manager. Or Run a service script.	Use VMware vCenter server.
Appliance	Power off	Use PowerStore Manager. Or Run a service script.	Use PowerStore Manager.
	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.	If the nodes or expansion enclosures were removed from the chassis, reseat the expansion enclosures and nodes. Reconnect power cables in the right order, and use VMware vCenter server.
	Reboot	Run a service script.	
Cluster	Power off	Use PowerStore Manager. Or Run a service script.	Use VMware vCenter server.
	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.	If the nodes or expansion enclosures were removed from the chassis, reseat the expansion enclosures and nodes. Reconnect power cables in the right order, and use VMware vCenter server.

Power control procedures

This chapter contains the following topics:
Topics:

- Powering off procedures for PowerStore node

- Powering on procedures for PowerStore node
- Rebooting procedures for a PowerStore node
- Powering off procedures for PowerStore appliances
- Powering on procedures for PowerStore appliances
- Powering off procedures for PowerStore cluster
- Powering on procedures for PowerStore cluster

Powering off procedures for PowerStore node
This section includes the following procedures:

- Power off a PowerStore T model node using PowerStore Manager on page 7
- Power off a PowerStore T model node using a service script on page 8
- Power off a PowerStore X model node on page 8

Power off a PowerStore T model 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

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 power off (power down) a PowerStore T model node using PowerStore Manager:

NOTE: If you are unable to access PowerStore Manager, see Power off a PowerStore T model node using a service script on page 8.
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 Rear View, expand Base Enclosure, and then 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 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 PowerStore T model 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 power off (power down) a PowerStore T model node using a service script:

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 [S V C : u s e r @ D S T 5 4 6 7 – A ~] $ indicates that you are logged into node A.
3. Based on the node you are logged into, run one of the following commands:
   - s v c _ n o d e s h u t d o w n l o c a l to power off the node you are logged into.
   - s v c _ n o d e s h u t d o w n p e e r 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.

Power off a PowerStore X model node

Prerequisites

Obtain the following information:

- Address of the VMware vCenter server associated with the appliance
- Associated vCenter server account credentials

Ensure that SSH is enabled on the ESXi host and configured to start automatically.

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 power off (power down) a PowerStore X model node:

Steps

1. Log in to the associated vCenter server.
2. If there are user VMs that are not configured for automatic migration to the ESXi host of the peer node, migrate them manually.

   NOTE: vSphere Remote Office Branch Office Advanced does not support automatic migration.
3. If there are user VMs that cannot migrate to the ESXi host of the peer node, shut them down manually.

4. Place the ESXi host for the PowerStore X model node in Maintenance Mode.
   VMware DRS starts to migrate user VMs to the ESXi host of the peer node, and then the PowerStore controller VM is powered off.
5. Monitor and ensure that all relevant user VMs migrate over to the ESXi host of the peer node.
6. Monitor the vCenter server console and confirm that the ESXi host for the PowerStore X model node has entered Maintenance Mode.
7. Using vCenter commands, shut down the ESXi host that is in Maintenance Mode.
8. Monitor the vCenter server console to ensure that the ESXi host has shut down.

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 other LEDs on the node must be OFF. The Unsafe to Remove LED on the active or peer node appears ON.

Powering on procedures for PowerStore node
This section includes the following procedures:

- Power on a PowerStore T model node using a service script on page 9
- Power on a PowerStore T model node by reseating the node on page 10
- Power on a PowerStore X model node using a service script on page 10
- Power on a PowerStore X model node by reseating the node on page 10

Power on a PowerStore T model 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 (power up) a PowerStore T model node in scenarios such as:

- You are remote and cannot reseat the node.
- Node was not removed from the chassis.
- 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: s v c _ n o d e p o w e r _ o n
4. Wait for the node to power on.

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

Power on a PowerStore T model node by reseating the node

About this task

Use the following procedure to power on (power up) a PowerStore T model node when it was removed from the chassis:

Steps

1. Reseat the node into the chassis.
   The node will power on automatically.
2. Reconnect the power cable.
3. Wait for the node to complete powering on.

Power on a PowerStore X model node using a service script

Prerequisites

Obtain the following information:

- Address of the VMware vCenter server associated with the appliance
- Associated vCenter server account credentials
- Management IP address of the appliance that contains the node
- Service account credentials

About this task

Use the following procedure to power on (power up) a PowerStore X model node in scenarios such as:

- You are remote and cannot reseat the node.
- Node was not removed from the chassis.
- 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: s v c _ n o d e p o w e r _ o n
   This command powers on the ESXi host for the intended node. Wait for the ESXi host to complete powering on.
4. Log in to the associated vCenter server, and exit the ESXi host for the node from Maintenance Mode.
   The controller VM powers on automatically.
   NOTE: For primary internal M.2 boot module replacements, skip this step. The controller VM powers on automatically once the ESXi host powers up because the ESXi host is not in Maintenance Mode.
5. Monitor the vCenter server console to ensure that the ESXi host and controller VM have returned to normal operation.

Power on a PowerStore X model node by reseating the node

About this task

Use the following procedure to power on (power up) a PowerStore X model node when it was removed from the chassis:

Steps

1. Reseat the node into the chassis.
   The node will power on automatically.
2. Reconnect the power cable.
3. Wait for the ESXi host for the node to complete powering on.
4. Log in to the associated vCenter server, and exit the ESXi host for the node from Maintenance Mode.
   The controller VM powers on automatically.

   NOTE: For primary internal M.2 boot module replacements, skip this step. The controller VM powers on automatically once the ESXi host powers up because the ESXi host is not in the Maintenance Mode.
5. Monitor the vCenter server console to ensure that the ESXi host and controller VM have returned to normal operation.

Rebooting procedures for a PowerStore node
This section includes the following procedures:

- Reboot a PowerStore T model node using PowerStore Manager on page 11
- Reboot a PowerStore T model node using a service script on page 11
- Reboot a PowerStore X model node on page 12

Reboot a PowerStore T model 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

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 PowerStore T model 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 PowerStore T model 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 PowerStore X model node:
Steps

1. Log in to the associated vCenter server.
2. If there are user VMs that are not configured for automatic migration to the ESXi host of the peer node, migrate them manually.

   NOTE: vSphere Remote Office Branch Office Advanced does not support automatic migration.
3. If there are user VMs that cannot migrate to the ESXi host of the peer node, shut them down manually.
4. Place the ESXi host for the node in Maintenance Mode.
   VMware DRS starts to migrate user VMs to the ESXi host of the peer node, and then the PowerStore controller VM is powered off.
5. Monitor and ensure that all relevant user VMs migrate over to the ESXi host of the peer node.
6. Once all VMs are migrated over and node goes into Maintenance Mode, reboot the ESXi host using vCenter commands.
7. Monitor the vCenter server console to ensure that the ESXi host has rebooted, and then exit the ESXi host from
   Maintenance Mode.
   The controller VM powers on automatically.
8. Monitor the vCenter server console to ensure that the ESXi host and controller VM have returned to normal operation.

Powering off procedures for PowerStore appliances
This section includes the following procedures:

- Power off a PowerStore T model appliance on page 13
- Power off a PowerStore X model appliance on page 14

Power off a PowerStore T model 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 PowerStore T model node using PowerStore Manager on page 7.
- 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 PowerStore T model appliance.

To power off all of the appliances in a cluster, see Power off a PowerStore T model cluster on page 16:

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 specify which appliance you want to become the new primary appliance:
   s v c _ c l u s t e r _ m a n a g e m e n t M o v e M a s t e r A p p l i a n c e < I D n u m b e r o f n e w p r i m a r y a p p l i a n c e >
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 off a PowerStore X model 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 PowerStore X model node on
page 8.

● Ensure that SSH is enabled on the ESXi host and configured to start automatically.

● 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:
  - Address of the VMware vCenter server associated with the appliance
  - Associated vCenter server account credentials
  - Service tags of the appliance and, if applicable, the associated expansion enclosures

About this task

Use the following procedure to power off a single PowerStore X model appliance in a multi-appliance cluster. To power off all of the appliances in a cluster, see Power off a PowerStore X model cluster on page 17.

Steps

1. Log in to PowerStore Manager.
2. Use PowerStore Manager to identify VMs that utilize the iSCSI or FC store of the appliance.
   a. Select Storage > Storage Containers.
   b. Select the first Storage Container.
   c. Select Virtual Volumes.
   d. Select the Show Filters icon.
   e. Select Add Filter > Appliance.
   f. Identify the VMs that are using storage on the appliance and the VMs that are running on the appliance.
   g. Repeat these steps for each Storage Container.
3. In vCenter, power off the VMs identified in the previous step as well as any VMs using VMFS or volume on the appliance.

   NOTE: If you migrate compute VM storage objects to another appliance, you can migrate the compute VM to that

   appliance instead of powering it off.
4. In PowerStore Manager, determine the primary appliance by going to Settings > Cluster > Properties.
5. 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 specify which appliance you want to become the new primary appliance:

   svc_cluster_managementMoveMasterAppliance <IDnumberofnewprimary appliance>
6. In PowerStore Manager, under Hardware, select the appliance that you want to power off.
7. Under More Actions, select Power Down.

   The Validation window opens.
8. Review any errors, warnings, and recommendations. Once the appliance passes all of the validation checks, click Next.

   The Active Objects window opens.
9. Review the list of objects on the appliance that had I/O activity during the last five minutes.
10. Click Next.

    The Confirm window opens.
11. Enter the service password, and then click Power Down.
12. Wait until PowerStore Manager confirms that the appliance is offline to ensure that the ESXi hosts have shut down.
13. Monitor the vCenter server console to ensure that the ESXi hosts have shut down.
14. Wait for 5 minutes, and then, if required, disconnect the power cables from the base enclosure and expansion enclosures.

Powering on procedures for PowerStore appliances
This section includes the following procedures:

- Power on a PowerStore T model appliance on page 15
- Power on a PowerStore X model appliance on page 15

Power on a PowerStore T model appliance
About this task
Use the following procedure to power on a PowerStore T model 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 turns 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 on a PowerStore X model appliance
Prerequisites
Obtain the following information:

- Address of the VMware vCenter server associated with the appliance
- Associated vCenter server account credentials
- Service tags of the appliance and, if applicable, the associated expansion enclosures
- Management IP address of the cluster and the service account credentials

About this task
Use the following procedure to power on a PowerStore X model appliance in a multi appliance cluster that already has one appliance powered on:
Steps

1. If nodes were removed, reseat the nodes back 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 turns 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 a power cable is connected to either node. ESXi hosts for

both the nodes power on in Maintenance Mode.

5. The ESXi hosts for both nodes exit Maintenance Mode automatically, and the controller VMs for both nodes automatically power on. Wait for the task to complete from vCenter.

   NOTE: The PowerStore controller VM can take around 10-15 minutes to power on.

6. Power on user VMs on the ESXi hosts for both nodes.
7. Verify that the PowerStore X model cluster is operating normally in both vCenter server and PowerStore Manager.

Powering off procedures for PowerStore cluster

This section includes the following procedures:

- Power off a PowerStore T model cluster on page 16
- Power off a PowerStore X model cluster on page 17

Power off a PowerStore T model cluster

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.
- When the cluster is powered off, you have no access to the GUI, 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 **https://www.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

Use the following procedure to power off (power down) a PowerStore T model cluster:

Steps

1. Use one of the following ways to issue a power off command:
   - Using PowerStore Manager:

   a. Select the Settings icon, and then select Power Down in the Cluster section.

   b. On the confirmation prompt, enter the service password, and then click Power Down.

   - Using service script:

   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 power off the appliance:

   s v c _ c l u s t e r s h u t d o w n
2. 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.

3. 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.
4. Disconnect the power cables from each of the associated expansion enclosures to power them down, if required.
5. If your cluster has more than one appliance, repeat steps 3 and 4 to disconnect power from the remaining appliances in the cluster.

Power off a PowerStore X model cluster

Use the following procedure to power off a single appliance cluster or a multi appliance cluster. Powering off a PowerStore X model cluster is not supported via 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.
● When the cluster is powered off, you have no access to the PowerStore Manager, 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 **https://www.dell.com/powerstoredocs**.
● Obtain the following information:
○ Site ID
○ Service tags of the appliances, and if applicable, the associated expansion enclosures
○ Address of the VMware vCenter server associated with the appliance
○ Associated vCenter server account credentials

About this task

For multi appliance clusters, the following table describes which controller VMs must be manually powered off. The remaining controller VMs are automatically shut down when you place the ESXi host in Maintenance Mode.

Table 2. Powering off controller VMs

Cluster size	Appliance 1	Appliance 2 1	Appliance 3	Appliance 4
1	Auto power off			
2	Auto power off	Manual power off		
3	Auto power off	Auto power off	Manual power off	
4	Auto power off	Auto power off	Manual power off	Manual power off

Steps

1. Log in to the associated vCenter server.
2. Shut down all user VMs except for the PowerStore X model controller VMs and vCLS VMs on internal ESXi hosts.
3. If your environment has external compute servers that access the PowerStore X model cluster storage using iSCSI or FC, shut down those VMs.
4. From vSphere, place the secondary ESXi host in Maintenance Mode.
5. Wait for the controller VM to power off. If the controller VM does not power off after 5 minutes, manually power off the VM from vSphere.
   When the PowerStore X model controller is powered off, ESXi finishes entering Maintenance Mode.
6. Place the primary ESXi host in Maintenance Mode.

7. Wait for the controller VM to power off. If the controller VM does not power off after 5 minutes, manually power off the VM from vSphere.

   When the PowerStore X model controller is powered off, ESXi finishes entering Maintenance Mode.
8. After placing the internal ESXi hosts into Maintenance Mode, use vCenter to shut down each host.

Powering on procedures for PowerStore cluster

This section includes the following procedures:

- Power on a PowerStore T model cluster on page 18
- Power on a PowerStore X model cluster on page 18

Power on a PowerStore T model cluster

About this task

Use the following procedure to power on a PowerStore T model 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.

Power on a PowerStore X model cluster

Use the following procedure to power on a single appliance cluster or a multi appliance cluster.

Prerequisites

Obtain the following information:

- Address of the VMware vCenter server associated with the appliance.
- Associated vCenter server account credentials
- Service tags of the appliance and, if applicable, the associated expansion enclosures.
- Management IP address of the cluster and the service account credentials

About this task

Use the following procedure to power on a PowerStore X model cluster.

For multi appliance clusters, the following table describes which controller VMs must be manually powered on. The remaining controller VMs are automatically powered on when you remove the ESXi host from Maintenance Mode.

Table 3. Powering on controller VMs

Cluster size	Appliance 1		Appliance 2		Appliance 3		Appliance 4	
	Controller VMA	Controller VMB	Controller VMA	Controller VMB	Controller VMA	Controller VMB	Controller VMA	Controller VM B
	1 Manual power on	2 Auto po wer on						
2	1 Manual power on	2 Manual power on	3 Manual power on	4 Auto po wer on				
3	1 Manual power on	2 Manual power on	3 Manual power on	4 Auto po wer on	5 Auto po wer on	6 Auto po wer on		
4	1 Manual power on	2 Manual power on	3 Manual power on	4 Manual power on	5 Manual power on	6 Auto po wer on	7 Auto po wer on	8 Auto po wer on

Steps

1. If nodes were removed, reseat the nodes back 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 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. Reconnect the power cables to node A first, and then node B.

   The Node Power LEDs on both nodes turn on when a power cable is connected to either node. ESXi hosts for both the nodes power on in Maintenance Mode.
5. From vSphere, exit the ESXi host for node A from Maintenance Mode.
6. If the controller VM does not power on in five minutes, manually power on the VM from vSphere.
7. Exit the ESXi host for node B from Maintenance Mode.
8. If the controller VM does not power on in five minutes, manually power on the VM from vSphere.
9. Repeat steps 4 through 8 for each appliance.
10. Power on user VMs on the ESXi hosts.
11. Verify that the PowerStore X model cluster is operating normally in both vCenter server and PowerStore Manager.

Safety precautions for handling replaceable units

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

- Handling replaceable units

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.

Avoiding 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 together 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/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 by ensuring 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 the event of an emergency.

- Before touching any unit, touch a bare (unpainted) metal surface of the cabinet/rack or enclosure.
- Before removing any unit from its antistatic bag, place one hand firmly on a bare metal surface of the cabinet/rack or enclosure, and at the same time, pick up the unit while it is still sealed in the antistatic bag. At the same time, 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 antistatic 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 antistatic bag. When you are ready again to install the unit, repeat these procedures.

Hardware acclimation times

Units must acclimate to the operating environment before applying power. This requires the unpackaged system or component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation.

Transit/storage environment		Operating environment temperature	Acclimation time
Temperature	Humidity		
Nominal 68-72°F (20-22°C)	Nominal 40-55% RH	Nominal 68-72°F (20-22°C) 40-55% RH	0-1 hour
Cold <68°F (20°C)	Dry <30% RH	<86°F (30°C)	4 hours
Cold <68°F (20°C)	Damp 30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Dry <30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Humid 30-45% RH	<86°F (30°C)	4 hours
	Humid 45-60% RH	<86°F (30°C)	8 hours
	Humid 60% RH	<86°F (30°C)	16 hours
Unknown		<86°F (30°C)	16 hours

- If there are signs of condensation after the recommended acclimation time has passed, allow an additional 8 hours to stabilize.
- Systems and components must not experience changes in temperature and humidity that are likely to cause condensation to form on or in that system or component. Do not exceed the shipping and storage temperature gradient of 45°F/hr (25°C/hr).

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

CAUTION: Some replaceable units have the majority of their weight in the rear of the component. Ensure that the back end 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.

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.

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

- 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. For additional information, refer to Avoiding electrostatic discharge (ESD) damage on page 20.
- 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 antistatic bag and the specially designed shipping container in which you received it. Use the
  antistatic 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. Refer to Hardware acclimation times on page 21 to ensure the replaceable unit has thermally stabilized to the operating environment.

NOTE: Your storage system is designed to be powered on continuously. Most components are hot swappable; that is, you can replace or install these components while the storage system is running. However, the system requires that front bezels should always be attached to ensure EMI compliance. Make sure you reattach the bezel after replacing a component. Also, each slot should contain a component or filler panel to ensure proper air flow throughout the system.

Unpacking 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.

Support Notifications

Learn how to disable and enable support notifications.

Topics:

- Disable support notifications
- Enable support notifications

Disable support notifications

Disable support notifications before performing procedures, such as a software upgrade or support procedure, which can power off or reboot a node in an appliance.

Steps

1. Select the Settings icon, and then select Disable Support Notifications in the Support section.
2. Select the appliance for which you want to disable support notifications and click Modify.
3. Select the Enable Maintenance Mode check box.
4. In the Maintenance Window Duration (in hours) field, type the number of hours to disable support notifications.

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

Results

When support notifications are disabled for an appliance, the Maintenance Mode column shows Enabled, and End Time (Cluster Time) shows the date and time when support notifications are reenabled for the appliance.

Enable support notifications

Enable support notifications after performing a procedure, such as a software upgrade or support procedure.

Steps

1. Select the Settings icon, and then select Disable Support Notifications in the Support section.
2. Select the appliance for which you want to enable support notifications and click Modify.

3. Clear the Enable Maintenance Mode checkbox.
4. Click Apply.

Results
When support notifications are enabled for an appliance, the Maintenance Mode column shows Disabled.

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Documents / Resources

	**DELL PowerStore Power Down and Reboot** [pdf] User Guide PowerStore Power Down and Reboot, PowerStore Power, Down and Reboot, Reboot