



Modify pool and group settings

SANtricity software

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Table of Contents

Modify pool and group settings	1
Change the configuration settings for a pool in SANtricity System Manager.....	1
Change the configuration settings for a volume group in SANtricity System Manager	3
Enable or disable resource provisioning on existing volume groups and pools in SANtricity System Manager	6
Enable or disable resource provisioning for new volume groups or pools in SANtricity System Manager	7
Enable security for a pool or volume group in SANtricity System Manager.....	8

Modify pool and group settings

Change the configuration settings for a pool in SANtricity System Manager

You can edit the settings for a pool, including its name, capacity alerts settings, modification priorities, and preservation capacity.

About this task

This task describes how to change configuration settings for a pool.



You cannot change the RAID level of a pool using the System Manager interface. System Manager automatically configures pools as RAID 6.

Steps

1. Select **Storage > Pools & Volume Groups**.
2. Select the pool that you want to edit, and then click **View/Edit Settings**.

The Pool Setting dialog box appears.

3. Select the **Settings** tab, and then edit the pool settings as appropriate.

Field details

Setting	Description
Name	<p>You can change the user-supplied name of the pool. Specifying a name for a pool is required.</p>
Capacity alerts	<p>You can send alert notifications when the free capacity in a pool reaches or exceeds a specified threshold. When the data stored in the pool exceeds the specified threshold, System Manager sends a message, allowing you time to add more storage space or to delete unnecessary objects.</p> <p>Alerts are shown in the Notifications area on the Dashboard and can be sent from the server to administrators by email and SNMP trap messages.</p> <p>You can define the following capacity alerts:</p> <ul style="list-style-type: none"> • Critical alert — This critical alert notifies you when the free capacity in the pool reaches or exceeds the specified threshold. Use the spinner controls to adjust the threshold percentage. Select the check box to disable this notification. • Early alert — This early alert notifies you when the free capacity in a pool is reaching a specified threshold. Use the spinner controls to adjust the threshold percentage. Select the check box to disable this notification.
Modification priorities	<p>You can specify the priority levels for modification operations in a pool relative to system performance. A higher priority for modification operations in a pool causes an operation to complete faster, but can slow the host I/O performance. A lower priority causes operations to take longer, but host I/O performance is less affected.</p> <p>You can choose from five priority levels: lowest, low, medium, high, and highest. The higher the priority level, the larger is the impact on host I/O and system performance.</p> <ul style="list-style-type: none"> • Critical reconstruction priority — This slider bar determines the priority of a data reconstruction operation when multiple drive failures result in a condition where some data has no redundancy and an additional drive failure might result in loss of data. • Degraded reconstruction priority — This slider bar determines the priority of the data reconstruction operation when a drive failure has occurred, but the data still has redundancy and an additional drive failure does not result in loss of data. • Background operation priority — This slider bar determines the priority of the pool background operations that occur while the pool is in an optimal state. These operations include Dynamic Volume Expansion (DVE), Instant Availability Format (IAF), and migrating data to a replaced or added drive.

Setting	Description
<p>Preservation capacity ("Optimization capacity" for the EF600 or EF300)</p>	<p>Preservation capacity — You can define the number of drives to determine the capacity that is reserved on the pool to support potential drive failures. When a drive failure occurs, the preservation capacity is used to hold the reconstructed data. Pools use preservation capacity during the data reconstruction process instead of hot spare drives, which are used in volume groups.</p> <p>Use the spinner controls to adjust the number of drives. Based on the number of drives, the preservation capacity in the pool appears next to the spinner box.</p> <p>Keep the following information in mind about preservation capacity.</p> <ul style="list-style-type: none"> Because preservation capacity is subtracted from the total free capacity of a pool, the amount of capacity that you reserve affects how much free capacity is available to create volumes. If you specify 0 for the preservation capacity, all of the free capacity on the pool is used for volume creation. If you decrease the preservation capacity, you increase the capacity that can be used for pool volumes. <p>Additional optimization capacity (EF600 and EF300 arrays only) — When a pool is created, a recommended optimization capacity is generated that provides a balance of available capacity versus performance and drive wear life. You can adjust this balance by moving the slider to the right for better performance and drive wear life at the expense of increased available capacity, or by moving it to the left for increased available capacity at the expense of better performance and drive wear life.</p> <p>SSD drives will have longer life and better maximum write performance when a portion of their capacity is unallocated. For drives associated with a pool, unallocated capacity is comprised of a pool's preservation capacity, the free capacity (capacity not used by volumes), and a portion of the usable capacity set aside as additional optimization capacity. The additional optimization capacity ensures a minimum level of optimization capacity by reducing the usable capacity, and as such, is not available for volume creation.</p>

4. Click **Save**.

Change the configuration settings for a volume group in SANtricity System Manager

You can edit the settings for a volume group, including its name and RAID level.

Before you begin

If you are changing the RAID level to accommodate the performance needs of the applications that are accessing the volume group, be sure to meet the following prerequisites:

- The volume group must be in Optimal status.
- You must have enough capacity in the volume group to convert to the new RAID level.

Steps

1. Select **Storage > Pools & Volume Groups**.
2. Select the volume group that you want to edit, and then click **View/Edit Settings**.

The Volume Group Settings dialog box appears.

3. Select the **Settings** tab, and then edit the volume group settings as appropriate.

Field details

Setting	Description
Name	You can change the user-supplied name of the volume group. Specifying a name for a volume group is required.
RAID level	<p>Select the new RAID level from the drop-down menu.</p> <ul style="list-style-type: none"> • RAID 0 striping — Offers high performance, but does not provide any data redundancy. If a single drive fails in the volume group, all of the associated volumes fail, and all data is lost. A striping RAID group combines two or more drives into one large, logical drive. • RAID 1 mirroring — Offers high performance and the best data availability, and is suitable for storing sensitive data on a corporate or personal level. Protects your data by automatically mirroring the contents of one drive to the second drive in the mirrored pair. It provides protection in the event of a single drive failure. • RAID 10 striping/mirroring — Provides a combination of RAID 0 (striping) and RAID 1 (mirroring), and is achieved when four or more drives are selected. RAID 10 is suitable for high volume transaction applications, such as a database, that require high performance and fault tolerance. • RAID 5 — Optimal for multi-user environments (such as database or file system storage) where typical I/O size is small and there is a high proportion of read activity. • RAID 6 — Optimal for environments requiring redundancy protection beyond RAID 5, but not requiring high write performance. <p>RAID 3 can be assigned only to volume groups using the command line interface (CLI).</p> <p>When you change the RAID level, you cannot cancel this operation after it begins. During the change, your data remains available.</p>
Optimization capacity (EF600 arrays only)	<p>When a volume group is created, a recommended optimization capacity is generated that provides a balance of available capacity versus performance and drive wear life. You can adjust this balance by moving the slider to the right for better performance and drive wear life at the expense of increased available capacity, or by moving it to the left for increased available capacity at the expense of better performance and drive wear life.</p> <p>SSD drives will have longer life and better maximum write performance when a portion of their capacity is unallocated. For drives associated with a volume group, unallocated capacity is comprised of a group's free capacity (capacity not used by volumes) and a portion of the usable capacity set aside as additional optimization capacity. The additional optimization capacity ensures a minimum level of optimization capacity by reducing the usable capacity, and as such, is not available for volume creation.</p>

4. Click **Save**.

A confirmation dialog box appears if capacity is reduced, volume redundancy is lost, or shelf/drawer loss protection is lost as a result of the RAID level change. Select **Yes** to continue; otherwise click **No**.

Results

If you change the RAID level for a volume group, System Manager changes the RAID levels of every volume that comprises the volume group. Performance might be slightly affected during the operation.

Enable or disable resource provisioning on existing volume groups and pools in SANtricity System Manager

For any DULBE-capable drives, you can enable or disable resource provisioning on existing volumes in a pool or volume group.

Resource provisioning is a feature available in the EF300 and EF600 storage arrays, which allows volumes to be put in use immediately with no background initialization process. All drive blocks assigned to the volume are deallocated (unmapped), which can improve SSD wear life and increase maximum write performance.

By default, resource provisioning is enabled on systems where the drives support DULBE. There is no need to enable resource provisioning unless you have previously disabled it.

Before you begin

- You must have an EF300 or EF600 storage array.



DULBE is not supported on EF300C or EF600C storage arrays at this time.

- You must have SSD volume groups or pools, where all the drives support the NVMe Deallocated or Unwritten Logical Block Error Enable (DULBE) error recovery capability. Otherwise, the resource provisioning option is not available.

About this task

When you enable resource provisioning for existing volume groups and pools, all volumes in the selected volume group or pool are changed to allow the blocks to be deallocated. This process might involve a background operation to ensure consistent allocation at the unmap granularity. This operation does not unmap any space. Once the background operation completes, the operating system needs to unmap any unused blocks to create free space.

When you disable resource provisioning for existing volume groups or pools, a background operation rewrites all the logical blocks in every volume. Existing data remains intact. The writes will map or provision the blocks on the drives associated with the volume group or pool.



For new volume groups and pools, you can enable or disable resource provisioning from **Settings** > **System** > **Additional Settings** > **Enable/Disable Resource-Provisioned Volumes**.

Steps

1. Select **Storage** > **Pools & Volume Groups**.
2. Select one pool or volume group from the list.

You can select only one pool or volume group at a time. Scroll down the list to see additional pools or

volume groups.

3. Select **Uncommon Tasks**, and then either **Enable resource provisioning** or **Disable resource provisioning**.
4. In the dialog box, confirm the operation.



If you re-enabled DULBE — After the background operation completes, you might need to reboot the host so it detects the DULBE configuration changes, and then remount all the filesystems.

Enable or disable resource provisioning for new volume groups or pools in SANtricity System Manager

If you previously disabled the default feature for resource provisioning, you can re-enable it for any new SSD volume groups or pools that you create. You can also disable the setting again.

Resource provisioning is a feature available in the EF300 and EF600 storage arrays, which allows volumes to be put in use immediately with no background initialization process. All drive blocks assigned to the volume are deallocated (unmapped), which can improve SSD wear life and increase maximum write performance.



By default, resource provisioning is enabled on systems where the drives support DULBE.

Before you begin

- You must have an EF300 or EF600 storage array.
- You must have SSD volume groups or pools, where all the drives support the NVMe Deallocated or Unwritten Logical Block Error Enable (DULBE) error recovery capability.



DULBE is not supported on EF300C or EF600C storage arrays at this time.

About this task

When you re-enable resource provisioning for new volume groups or pools, only newly created volume groups and pools are affected. Any existing volume groups and pools with resource provisioning enabled will remain unchanged.

Steps

1. Select **Settings > System**.
2. Scroll down to **Additional Settings**, and then click **Enable/Disable Resource-Provisioned Volumes**.

The setting description indicates whether resource provisioning is currently enabled or disabled.

3. In the dialog box, confirm the operation.

Results

Enabling or disabling resource provisioning affects only new SSD pools or volume groups that you create. Existing pools or volume groups remain unchanged.

Enable security for a pool or volume group in SANtricity System Manager

You can enable Drive Security for a pool or volume group to prevent unauthorized access to the data on the drives contained in the pool or volume group. Read and write access for the drives is only available through a controller that is configured with a security key.

Before you begin

- The Drive Security feature must be enabled.
- A security key must be created.
- The pool or volume group must be in an Optimal state.
- All of the drives in the pool or volume group must be secure-capable drives.

About this task

If you want to use Drive Security, select a pool or volume group that is secure-capable. A pool or volume group can contain both secure-capable and non-secure-capable drives, but all drives must be secure-capable to use their encryption capabilities.

After enabling security, you can only remove it by deleting the pool or volume group, and then erasing the drives.

Steps

1. Select **Storage > Pools & Volume Groups**.
2. Select the pool or volume group on which you want to enable security, and then click **More > Enable security**.

The Confirm Enable Security dialog box appears.

3. Confirm that you want to enable security for the selected pool or volume group, and then click **Enable**.

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