Configuring Storage Volumes

See the following topics for information on storage volumes:

- About Volumes
- Planning Volumes
- Managing Volumes

About Volumes

You manage the array's physical disks as a pool of storage space for creating volumes. Volumes are "containers" into which applications, databases, and file systems can put data. Volumes are created from the virtual disks in storage pools. Based on your specifications, the array automatically allocates the storage from different disks to satisfy your volume configuration requirements.

There are several different types of volumes:

- **Standard volume.** A standard volume is a logical structure created on a storage array for data storage. When you create a volume, initially it is a standard volume. These are the typical volumes that users will access from data hosts.

- **Source volume**. A standard volume becomes a source volume when it participates in a volume copy operation as the volume that contains the data to be copied to a target volume. The source and target volumes maintain their association through a copy pair. When the copy pair is removed, the source volume reverts back to a standard volume.

- **Target volume**. A standard volume becomes a target volume when it participates in a volume copy operation as the volume that receives data from a source volume. The source and target volumes maintain their association through a copy pair. When the copy pair is removed, the target volume reverts back to a standard volume.

- **Snapshot volume.** A snapshot volume is a point-in-time image of a standard volume. The management software creates a snapshot volume when you use the snapshot feature. When you delete a snapshot volume, the management software also deletes its associated reserve volume.

- **Reserve volume**. A snapshot reserve volume is automatically created when you create a snapshot volume. The snapshot reserve volume stores information about the data that has changed since the volume snapshot was created. When you delete a snapshot volume, the management software also deletes the reserve volume.

You can create up to 256 volumes on each virtual disk. After you create the standard volumes, assign a host or host group in your environment to one of the volumes. Each host must be assigned an initiator. To see the current volumes, go to the Volume Summary page, as described in Displaying Volume Information.

Related Topics

- Managing Volumes
- About Volume Snapshots

Planning Volumes

Creating a volume involves a number of tasks and decisions about a variety of elements in your storage configuration. Therefore, before running the New Volume wizard to create a new volume, plan your storage.

When you create a snapshot, be prepared to provide the following information:

- Volume name

  Provide a unique name that identifies the volume.

- Volume capacity

  Identify the capacity of the volume in either megabytes, gigabytes, or terabytes.

- The storage pool for this volume.

  By default, the management software supplies a default storage pool, which uses the default profile which implements RAID-5 storage characteristics that can be used in the most common storage requirements. Other pools may have also been configured. Before you run the New Volume wizard, check the list of configured pools to see if one of the pools has the storage characteristics you want. If a suitable pool does not exist, create a new pool using an existing or a new profile before you run the New Volume wizard.

- The way a virtual disk is selected

  A volume can be created on a virtual disk as long as the RAID level, the number of disks, and the disk type (either FC or SATA) of the virtual disk matches the volume's pool profile. The virtual disk must also have enough capacity for the volume. You must determine the way the software assigns the volume to a virtual disk. The following options are available:

  - Automatic: The management software automatically selects the virtual disk on which to create the volume from a list (provided by the array) of virtual disks that match the necessary criteria.
  - Manual: Enables you to select the virtual disks on which to create the volume from the list of all available virtual disks.
  - Create: Enables you to create a new virtual disk on which to create the volume.
- Whether or not to map the volume to a host or host group

  Determine which hosts or host groups, if any, you want to have read/write access to the volume by including the volume in a LUN map set.

  To include the volume in a LUN map set, select Yes and the software prompts you to select the host or host groups to map to the volume. Otherwise, select no.

  By default the All host group allows all hosts on the network to have access to the volumes. You can map the volume to this host group, however for enhanced security you can create other host groups that include only selected hosts.

Use the following chart to plan the volume's storage characteristics.

TABLE 11-1 Volume Storage Attributes

Storage Attribute	Value
RAID level	
Segment size	
Read-ahead mode	
Profile	
Pool	
Number of drives	
Disks	
Virtual disk	
Capacity	
Host or Host Group	

Note – After you complete the New Volume wizard, ensure that for each host mapped to a new volume or in cluded in a host group that is mapped to the new volume, that you have created an initiator and mapped it to that host.

Related Topics

- [Creating a Volume](#)
- [Modifying a Volume](#)
- [Deleting a Volume](#)
- [Creating an Initiator](#)

Managing Volumes

When you create a volume, the array allocates capacity to a storage pool. You will most likely also map the volume to a host or host group to enable read/write access to the volume. You can create volume snapshots, and you can extend the volume capacity as necessary.

Related Topics

- [Planning Volumes](#)
- [About Volumes](#)
- [Displaying Volume Information](#)
- [Creating a Volume](#)
- [Modifying a Volume](#)
- [Deleting a Volume](#)
- [Mapping a Volume to a Host or Host Group](#)
- [Unmapping a Volume From an Initiator](#)
- [Planning a Volume Snapshot](#)
- [Expanding Volume Capacity](#)
- [About Volume Snapshots](#)

Displaying Volume Information

You can display summary and detail information about existing storage volumes. You can also display summary information about the mapped hosts and host groups, snapshots, and virtual disks that are associated with each volume.

To display information on volumes:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

   The Volume Summary page is displayed.

3. Click a volume name for detailed information on that volume.

   The Volume Details page for the selected volume is displayed.

4. Go to Additional Information and click any item for more information associated with the selected volume.

   The Summary page for the selected item is displayed.

Related Topics

- [About Volumes](#)
- [Planning Volumes](#)
- [Creating a Volume](#)
- [Modifying a Volume](#)
- [Deleting a Volume](#)

Creating a Volume

For information on the factors you must consider in planning the volume's storage characteristics, see [Planning Volumes](#).

When you run the New Volume wizard, you are prompted to do the following:

1. Define the volume name.

2. Assign the volume capacity.

3. Assign a storage pool with its storage characteristics.

4. Create or assign virtual disks from physical disks.

5. Map the volume to a LUN by selecting a host or host group name.

Note – You can also open a second window to create these elements while performing the wizard.

To create a volume:

1. Click SE6130 Configuration Service > Storage > Logical > Volumes > New.

   The New Volume wizard is displayed.

   Follow the steps in the wizard. Click the Help button in the wizard for more information.

Note – After you complete the New Volume wizard, ensure that for any host or host group mapped to the new volume, that you have created an initiator and mapped it to that host or host group.

Related Topics

- <u>About Volumes</u>
- <u>Displaying Volume Information</u>
- <u>Planning Volumes</u>
- <u>Managing Volumes</u>
- <u>Expanding Volume Capacity</u>

Modifying a Volume

To modify a volume's name or description:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

   The Volume Summary page is displayed.

3. Select the volume that you want to modify.

   The Volume Details page for that volume is displayed.

4. Make the appropriate modifications, and click OK.

   A message specifies that the volume was modified successfully.

Related Topics

- [Managing Volumes](#)
- [Creating a Volume](#)
- [Deleting a Volume](#)

Deleting a Volume

You cannot delete a volume that is mapped to a host or host group or that has snapshots associated with it. If the selected volume is the only volume in the pool, the pool is also deleted. If there are other volumes on the same pool, the storage of the volume to delete is converted to a free extent for future volume creation.

To delete a volume:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

3. Select the check box for the volume that you want to delete. This enables the Delete button.

4. Click Delete. The volume is removed from the Volumes Summary table.

Related Topics

- [Managing Volumes](#)
- [Creating a Volume](#)
- [Modifying a Volume](#)

Mapping a Volume to a Host or Host Group

To map a volume to one or more hosts or host groups:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

   The Volume Summary page is displayed.

3. Click the volume to which you want to map one or more hosts or host groups.

   The Map button is enabled

4. Click Map.

The Map Volume page appears with a list of available Hosts and Host Groups. Use the quick filter to display only Hosts or Host Groups.

5. Select the Host or Host Group that you want to map to this volume.

A message specifies that the volume or volumes were mapped successfully.

Related Topics

- [Managing Volumes](#)
- [Creating an Initiator](#)
- [Unmapping a Volume from a Host or Host Group](#)

Unmapping a Volume from a Host or Host Group

To unmap a volume from one or more hosts or host groups:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

3. Click the volume to which you want to map one or more hosts or host groups.

The Volume Details page is displayed and the Unmap button is enabled.

4. Click Unmap.

A message specifies that the selected objects were successfully deleted.

Related Topics

- [Managing Volumes](#)
- [Creating an Initiator](#)
- [Mapping a Volume to a Host or Host Group](#)

Expanding Volume Capacity

You cannot expand the capacity of a volume that has snapshots associated with it.

To expand the capacity of a volume:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

The Volume Summary page is displayed.

3. Click the Volume whose capacity you want to expand.

   The Volume Details page is displayed.

4. Click Expand.

   The Expand Volume page is displayed. It shows the current capacity.

5. Specify the volume capacity you want.

   The capacity is the usable size of the volume for data.

6. Click OK.

   A message specifies that dynamic volume expansion is in progress.

Related Topics

- [Managing Volumes](#)

Volume Summary Page

This page displays information about all storage volumes. Click an individual volume name to see the volume details and additional information.

From this page you can:

- Create a new volume
- Map a volume to a host or host group
- Delete a volume
- View performance statistics for each volume on the array

You can filter the volume listings by pool, thereby showing only those volumes that are associated with that pool.

TABLE 11-2

Field	Indicates
Name	The volume name.
Type	The volume types are: • Standard - A standard volume. • Snapshot - A snapshot volume contains the current volume snapshots. • Repository - A repository volume contains all exisiting volumes. • Source - A source volume for a snapshot. • Target - A target volume is where you want to save the snapshot.
Virtual Disk	The virtual disk that is associated with this volume.
Pool	The storage pool associated with this volume.
Capacity	The storage capacity that is allocated to this volume. The capacity is the usable size of the volume for data. You might need additional capacity for a snapshot reserve.

Related Topics

- [About Volumes](#)
- [Displaying Volume Information](#)
- [Planning Volumes](#)
- [Creating a Volume](#)
- [Modifying a Volume](#)

- [Deleting a Volume](#)
- [Mapping a Volume to a Host or Host Group](#)
- [Unmapping a Volume From an Initiator](#)
- [Planning a Volume Snapshot](#)
- [Expanding Volume Capacity](#)

Volume Details Page

This page displays details about the selected volume. If you are a Storage user, you can also perform additional actions from this page, depending on the volume type:

TABLE 11-3 Additional Actions on Volumes

	Volume Type				
	Standard	Source	Target	Source/Target	Repository
Map the volume to a host or host group	x	x	x	-	-
Unmap the volume from a host or host group	-	-	-	x	-
Create a volume snapshot	x	x	-	-	-
Re-copy a volume copy	-	-	x	x	-
Copy a volume	x	x	x	x	-
Remove a copy pair	-	-	x	x	-
View performance statistics	x	x	x	x	-
Delete the volume	x	x	x	x	-

TABLE 11-4 Volume Details

Field	Indicates
Capacity	The storage capacity that is allocated to this volume: KB, MB, GB (default), TB, Blocks. The capacity is the usable size of the volume for data. You might need additional capacity for a snapshot reserve.
Virtual Disk	The number of virtual disks for this volume.
Pool	The storage pool associated with this volume.
RAID Level	0, 1, 3, 5
Segment Size	The size of the volume that is allocated to this storage pool.
Read Ahead Enabled	Whether the read cache is enabled: True or False.
Write Cache Enabled	Whether the write cache is enabled: True or False.

TABLE 11-4 Volume Details

Field	Indicates
Status	Whether the volume is Online or Off line.
Condition	Whether the volume is Optimal or in an error condition.
State	The current state of the volume: Initializing, Ready.
Preferred Controller	The controller of choice when both controllers are operational.
Owning Controller	The controller for this array: A or B.
Modification Priority	The priority as to whether this volume can or should be modified: highest, high, medium, low, lowest
Capacity	The storage capacity that is allocated to this volume: KB, MB, GB (default), TB, Blocks. The capacity is the usable size of the volume for data. You might need additional capacity for a snapshot reserve.
Virtual Disk	The number of virtual disks for this volume.

This table provides additional volume information. Click an item to see its details.

TABLE 11-5 Storage Volume Additional Information

Type	Number of Items
Mappings	The number of mapped initiators for this volume.
Snapshots	The number of snapshots for this volume.

Related Topics

- About Volumes
- Displaying Volume Information
- Planning Volumes
- Creating a Volume
- Modifying a Volume
- Deleting a Volume
- Mapping a Volume to a Host or Host Group
- Unmapping a Volume From an Initiator
- Planning a Volume Snapshot
- Expanding Volume Capacity

Volume Additional Information - Mapping Summary Page

This page shows the initiators mapped to this volume.

TABLE 11-6   Volume Additional Information - Mapping Summary

Field	Indicates
Initiator	The name of the mapped initiator.
Initiator WWN	The World Wide Name of the initiator.
Host	A data host - the se.rver and initiator providing data to be stored.
Host Group	A collection of host mapped to a volume.

Related Topics

■ [About Volumes](#)

■ [Managing Volumes](#)

Unmapping a Volume From an Initiator

To unmap a volume from an initiator:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

3. Click the volume that you want to unmap from one or more initiators.

   The Volume Details page is displayed. The Volume Additional Information table shows the current mapped initiators.

4. Click Unmap.

   The Mapping Volume page appears.

5. Select one or more hosts or host groups that you want to map to the volume.

6. Click Unmap.

   Upon completion of the unmapping process, this message appears:

   The requested initiators were successfully unmapped.

Related Topics

- [Managing Volumes](#)
- [Mapping a Volume to a Host or Host Group](#)

Volume Additional Information - Virtual Disk Summary Page

This page shows the virtual disks that are associated with this volume.

TABLE 11-7 Volumes Additional Information -Virtual Disk Summary

Field	Indicates
Name	The name of the virtual disk.
Host	The host associated with this virtual disk.
Storage Pool	The storage pool associated with this virtual disk.
Storage Profile	The storage profile associated with this virtual disk.
State	The current state of the virtual disk: • In Use - The pool has one or more virtual disks associated with it. • Not In Use - There is no virtual disk associated with the pool.
Total Capacity	The total memory capacity for this virtual disk.
Configured Capacity	The capacity that is configured for this virtual disk.
Available Capacity	The remaining capacity for this virtual disk.
Status	The current status of this virtual disk: OK, Unknown, Other, or Degraded.

Related Topics

- [About Volumes](#)
- [Displaying Volume Information](#)
- [Planning Volumes](#)
- [Creating a Volume](#)
- [Modifying a Volume](#)
- [Deleting a Volume](#)

- [Mapping a Volume to a Host or Host Group](#)
- [Unmapping a Volume From an Initiator](#)
- [Planning a Volume Snapshot](#)
- [Expanding Volume Capacity](#)

Volume Additional Information - Snapshot Summary Page

This page shows the snapshots that are associated with this volume.

Additionally, this page allows you to resnap a volume.

Field	Indicates
Name	The snapshot name.
Base Volume	The base volume associated with this snapshot.
Reserve Volume	The reserve volume associated with this snapshot.
Creation Date	The date this snapshot was created.
Percent Full	The percentage of the snapshot reserve volume that is being used.
WWN	The world-wide name of the snapshot.

Related Topics

- [About Volumes](#)
- [Managing Volumes](#)

Deleting a Volume Snapshot

Additional Info - Do not review

To delete a volume snapshot:

1. Go to the Sun Web Console page and click SE6130 Configuration Service.

2. Click Storage > Logical > Volumes.

3. Click the volume from which you want to delete the snapshot.

   The Volume Details page is displayed. The Volume Additional Information table shows the current volume snapshots.

4. Click the Snapshots Additional Information. The Snapshot Summary page appears.

5. Select the snapshot that you want to delete, which enables the Delete button.

6. Click Delete. Upon completion of the deletion, this message appears:

   The requested snapshots were successfully deleted.

Related Topics

- [About Volumes](#)
- [Managing Volumes](#)