# Mirror volumes asynchronously

SANtricity 11.5

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## Create asynchronous mirrored volume

You mirror a volume asynchronously to maintain data at the remote storage array to be a point-in-time consistent copy of data at the local storage array. You do this by creating a mirror consistency group to establish the mirroring relationship between the two storage arrays, and then selecting the primary volume and secondary volume that you want to use in the mirror.

**Before you begin**

- The following conditions must be set up:
  - The Web Services Proxy service is running.
  - SANtricity Unified Manager is running on your local host through an HTTPS connection.
  - Each controller in both the primary array and secondary array must have an Ethernet management port configured and must be connected to your network.
  - SANtricity Unified Manager is showing valid SSL certificates for the storage array. You can accept a self-signed certificate or install your own security certificate using Unified Manager and navigating to **Certificate › Certificate Management**.
  - SANtricity System Manager is launched from a Unified Manager.
  - You must have discovered the two storage arrays you want to mirror data between. Then, from Unified Manager, you select the primary volume's storage array and click Launch to open the browser-based SANtricity System Manager.
- You must know the password for the local and remote storage arrays.
- Your local and remote storage arrays must be connected through a Fibre Channel fabric or iSCSI interface.

**About this task**

The process to mirror a volume asynchronously is a multi-step procedure:

- Step 1: Create a mirror consistency group or select an existing one
- Step 2: Select the primary volume
- Step 3: Select the secondary volume

A volume can participate in only one mirror relationship.

### Step 1: Create a mirror consistency group or select an existing one

You create a mirror consistency group or select an existing one to establish the mirroring relationship between the local storage array and the remote storage array.

**About this task**

The number of mirror consistency group relationships and mirrored pair relationships that you can create depends on the hardware in your storage array.

**Steps**

1. Do one of the following actions to access the asynchronous mirroring sequence:
   - Select **Storage › Asynchronous Mirroring › Create Mirrored pair**.
   - Select **Storage › Volumes › Copy Services › Mirror a volume asynchronously**.
2. Either select an existing mirror consistency group or create a new one.

   To create new mirror consistency group, do the following:

   a. Enter a unique name that best describes the data on the volumes that will be mirrored between the two storage arrays (for example, R&D Data).
   b. Select the remote storage array on which you want to establish a mirror relationship with the local storage array.

      > If your remote storage array is password protected, the system prompts for a password.

   c. Choose whether you want to resynchronize the mirrored pairs on the remote storage array either manually or automatically.
      - **Manual** — You must explicitly update the secondary point-in-time image using the Manual Resynchronization menu option. Select this option to manually start resynchronization for all asynchronous mirrored pairs within the asynchronous mirror group.
      - **Automatic** — Using the drop-down, specify the time from the beginning of the previous update to the beginning of the next update. To change the automatic synchronization interval from the default of every 10 minutes, edit the interval value, which is defined in minutes.
   d. Click Create.

      System Manager creates the mirror consistency group on the local storage array first and then creates the mirror consistency group on the remote storage array.

      > If System Manager successfully creates the mirror consistency group on the local storage array, but fails to create it on the remote storage array, it automatically deletes the mirror consistency group from the local storage array. If an error occurs while System Manager is attempting to delete the mirror consistency group, you must manually delete it.

3. Select **Next** and go to Step 2: Select the primary volume.

## Step 2: Select the primary volume

You must select the primary volume that you want to use in the mirror relationship and allocate its reserved capacity. Any volumes added to the mirror consistency group on the local storage array will hold the primary role in the mirror relationship.

### Steps

1. Select an existing volume that you want to use as the primary volume in the mirror, and then click **Next** to allocate the reserved capacity.
2. Allocate the reserved capacity for the primary volume you selected. Do one of the following actions:
   - **Accept the default settings** — Use this recommended option to allocate the reserved capacity for the primary volume with the default settings.

- **Allocate your own reserved capacity settings to meet your data storage needs related to asynchronous mirroring** — Allocate the reserved capacity using the following guidelines.
  - The default setting for reserved capacity is 20% of the capacity of the base volume, and usually this capacity is sufficient.
  - The capacity needed varies, depending on the frequency and size of I/O writes to the primary volume and how long you need to keep the capacity.
  - In general, choose a larger capacity for reserved capacity if one or both of these conditions exist:
    - You intend to keep the mirrored pair for a long period of time.
    - A large percentage of data blocks will change on the primary volume due to heavy I/O activity. Use historical performance data or other operating system utilities to help you determine typical I/O activity to the primary volume.

3. Select **Next** and go to Step 3: Select the secondary volume.

## Step 3: Select the secondary volume

You must select the secondary volume that you want to use in the mirror relationship and allocate its reserved capacity. Any volumes added to the mirror consistency group on the remote storage array will hold the secondary role in the mirror relationship.

### About this task

When you select a secondary volume on the remote storage array, the system displays a list of all the eligible volumes for that mirrored pair. Any volumes that are not eligible to be used do not display in that list.

### Steps

1. Select an existing volume that you want to use as the secondary volume in the mirrored pair, and then click **Next** to allocate the reserved capacity.
2. Allocate the reserved capacity for the secondary volume you selected. Do one of the following actions:
   - **Accept the default settings** — Use this recommended option to allocate the reserved capacity for the secondary volume with the default settings.
   - **Allocate your own reserved capacity settings to meet your data storage needs related to asynchronous mirroring** — Allocate the reserved capacity using the following guidelines.
     - The default setting for reserved capacity is 20% of the capacity of the base volume, and usually this capacity is sufficient.
     - The capacity needed varies, depending on the frequency and size of I/O writes to the primary volume and how long you need to keep the capacity.
     - In general, choose a larger capacity for reserved capacity if one or both of these conditions exist:
       - You intend to keep the mirrored pair for a long period of time.
       - A large percentage of data blocks will change on the primary volume due to heavy I/O activity. Use historical performance data or other operating system utilities to help you determine typical I/O activity to the primary volume.
3. Select **Finish** to complete the asynchronous mirroring sequence.

### Results

System Manager performs the following actions:

- Begins initial synchronization between the local storage array and the remote storage array.

- If the volume being mirrored is a thin volume, only the provisioned blocks (allocated capacity rather than reported capacity) are transferred to the secondary volume during the initial synchronization. This reduces the amount of data that must be transferred to complete the initial synchronization.
- Creates the reserved capacity for the mirrored pair on the local storage array and on the remote storage array.

# Complete mirrored pair for primary volumes created on legacy system

If you created a primary volume on a legacy storage array that cannot be managed by SANtricity System Manager, you can create the secondary volume on this array with SANtricity System Manager.

#### About this task

You can perform asynchronous mirroring between legacy arrays that use a different interface and newer arrays that can be managed by SANtricity System Manager.

- If you are mirroring between two storage arrays that use SANtricity System Manager, you can skip this task because you already completed the mirrored pair in the mirrored pair creation sequence.
- Perform this task on the remote storage array.

#### Steps

1. Select **Storage › Asynchronous Mirroring**.
2. Select the **Mirrored Pair** tab.

   The Mirrored Pairs table appears and displays all the mirrored pairs associated with the storage array.

3. Find the mirrored pair volume with a status of Incomplete, and then click the **Complete mirrored pair** link displayed in the mirrored pair column.
4. Choose whether you want to complete the mirrored pair creation sequence automatically or manually by selecting one of the following radio buttons:
   - **Automatic** — Create new secondary volume.

     Accept the default settings for the remote side of the mirrored pair by selecting an existing pool or volume group where you want to create the secondary volume. Use this recommended option to allocate the reserved capacity for the secondary volume with the default settings.

   - **Manual** — Select an existing volume.

     Define your own parameters for the secondary volume.

     i. Click **Next** to select the secondary volume.
     ii. Select an existing volume that you want to use as the secondary volume and then click **Next** to allocate the reserved capacity.
     iii. Allocate the reserved capacity. Do one of the following:
       - Accept the default settings.

         The default setting for reserved capacity is 20% of the capacity of the base volume, and usually this capacity is sufficient.

- Allocate your own reserved capacity settings to meet your data storage needs related to asynchronous mirroring.

  The capacity needed varies, depending on the frequency and size of I/O writes to the primary volume and how long you need to keep the capacity. In general, choose a larger capacity for reserved capacity if one or both of these conditions exist:

  - You intend to keep the mirrored pair for a long period of time.
  - A large percentage of data blocks will change on the primary volume due to heavy I/O activity. Use historical performance data or other operating system utilities to help you determine typical I/O activity to the primary volume.

5. Select **Complete**.

**Results**

SANtricity System Manager performs the following actions:

- Creates the secondary volume on the remote storage array and allocates reserved capacity for the remote side of the mirrored pair.
- Begins initial synchronization between the local storage array and the remote storage array.
- If the volume being mirrored is a thin volume, only the allocated blocks are transferred to the secondary volume during the initial synchronization. This transfer reduces the amount of data that must be transferred to complete the initial synchronization.
- Creates the reserved capacity for the mirrored pair on the local storage array and on the remote storage array.