



# Managing Copy Services

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## Copy Services

Both IBM Storwize and IBM SAN Volume Controllers provide Copy Services functions that enable to copy volumes for all supported hosts that are connected to IBM Storwize and IBM SAN Volume Controllers.

### FlashCopy

The FlashCopy function creates an instant, point-in-time copy from a source volume to a target volume, which associates the source volume and the target volume in a FlashCopy mapping.

- **Snapshot**—The snapshot preset creates a point-in-time view of the production data. The snapshot is not intended to be an independent copy but is used to maintain a view of the production data at the time the snapshot is created. Therefore, the snapshot holds only the data from regions of the production volume that changed since the snapshot was created. Since the snapshot preset uses thin provisioning, only the capacity that is required for the changes is used.
- **Clone**—The clone preset creates an exact replica of the volume, which can be changed without impacting the original volume. After the copy completes, the mapping that was created by the preset is automatically deleted.
- **Backup**—The backup preset creates a point-in-time replica of the production data. After the copy completes, the backup view can be refreshed from the production data, with minimal copying of data from the production volume to the backup volume.

### Remote Copy

Metro Mirror and Global Mirror are two types of remote-copy operations that enable you to set up a relationship between two volumes, where updates made to one volume are mirrored on the other volume. The volumes can be on either the same system or on two different systems. To use Metro Mirror and Global Mirror functions, you must have the remote-copy license installed on each enclosure that you plan to use these functions.

- The synchronous copy service (Metro Mirror)—Provides a consistent copy of a source volume on a target volume so that the copy is continuously updated. Data is written to the target volume synchronously after it is written to the source volume, both of which can belong to the same instance or different instances.
- The asynchronous copy service (Global Mirror)—Provides a consistent copy of a source volume on a target volume so that the copy is continuously updated, but the copy might not contain the most recent updates. Data is written to the target volume asynchronously after it is written to the source volume, both of which can belong to the same instance or different instances.

## Creating FlashCopy Snapshot

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy** tab.
  - Step 5** Choose the volume that you want to create a snapshot.
  - Step 6** Click **Snapshot**.
  - Step 7** In the **Create Snapshot** dialog box, click **Submit**.
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## Creating FlashCopy Backup

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy** tab.
  - Step 5** Choose the volume that you want to create a backup.
  - Step 6** Click **Backup**.
  - Step 7** In the **Create Backup** dialog box, click **Submit**.
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## Creating FlashCopy Clone

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy** tab.
  - Step 5** Choose the volume that you want to clone.
  - Step 6** Click **Clone**.
  - Step 7** In the **Create Clone** dialog box, click **Submit**.
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## Deleting FlashCopy

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy** tab.
  - Step 5** Choose the volume that you want to delete.
  - Step 6** Click **Delete**.
  - Step 7** Check the **Delete the Volume even it has host mappings or is used in FlashCopy mappings or remote copy relationships** check box, if required .
  - Step 8** In the **Delete** dialog box, click **Submit**.
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## Starting FlashCopy Services

### Before You Begin

Create FlashCopy consistency group and FlashCopy mappings using one of the FlashCopy presets (Snapshot, Clone, or Backup).

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy Consistency Groups** tab.
  - Step 5** Choose the FlashCopy Consistency Group, which is empty.
  - Step 6** Click **Start**.
  - Step 7** In the **Start Consistency Group** dialog box, click **Submit**.
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## Stopping FlashCopy Services

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy Consistency Groups** tab.
  - Step 5** Choose the FlashCopy Consistency Group.
  - Step 6** Click **Stop**.
  - Step 7** In the **Stop Consistency Group** dialog box, click **Submit**.
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## Creating Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type (IBM Storwize or IBM SAN Volume Controller).
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Click **Create**.
  - Step 6** In the **Create Remote Copy Relationships** dialog box, complete the following fields:

Name	Description
Copy Type drop-down list	Choose the remote copy type.
Name field	Enter the name for the selected remote copy type.
Master Volume field	Choose the master volume.
Auxiliary volume field	Choose the secondary volume.
Sync Status drop-down list	Choose if the volumes are already synchronization or not.
Copy status drop-down list	Choose if you want the volume to be copied or not.

**Step 7** Click **Submit**.

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## Editing Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy type that you want to edit.
  - Step 6** Click **Edit**.
  - Step 7** In the **Edit Remote Copy Relationship** dialog box, choose the remote copy type that you want to change to.
  - Step 8** For the Global Mirror type, choose the cyclic mode.
  - Step 9** For the Global Mirror type, enter the cyclic period in seconds.
  - Step 10** Click **Submit**.
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## Renaming Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy relationship that you want to rename.
  - Step 6** Click **Rename**.
  - Step 7** In the **Rename Remote Copy Relationship** dialog box, enter a new relationship name for the remote copy.
  - Step 8** Click **Submit**.
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## Deleting Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy relationship that you want to delete.
  - Step 6** Click **Delete**.
  - Step 7** In the **Delete Remote Copy Relationship** dialog box, check the **Force Delete** check box to delete the relationship even when the data in the target volume is inconsistent, or if the target volume has other dependencies.
  - Step 8** Click **Submit**.
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## Starting Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy relationship that you want to start.
  - Step 6** Click **Start**.
  - Step 7** In the **Start Remote Copy Relationship** dialog box, click **Submit**.
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## Stopping Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy relationship that you want to stop.
  - Step 6** Click **Stop**.
  - Step 7** In the **Stop Remote Copy Relationship** dialog box, click **Submit**.
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## Switching Remote Copy Relationships

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **Remote Copy** tab.
  - Step 5** Choose the remote copy relationship that you want to switch the write access and primary volume between master auxiliary volumes.
  - Step 6** Click **Switch**.
  - Step 7** In the **Switch Remote Copy Relationship** dialog box, Click **Submit**.
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## Adding Remote Copy Relationships to Remote Copy Consistent Groups

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, navigate to the pod in which the storage account is added.
- Step 3** Choose the storage account type.
- Step 4** Click the **Remote Copy** tab.
- Step 5** Click **Add**.
- Step 6** In the **Add to Consistency Group** dialog box, click **Select**.
- Step 7** Choose the consistent group to which you want to add the remote copy relationship with the consistent group.
- Step 8** Click **Select**.
- Step 9** Click **Submit**.
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## Removing Remote Copy Relationships from Remote Copy Consistent Groups

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, navigate to the pod in which the storage account is added.
- Step 3** Choose the storage account type.
- Step 4** Click the **Remote Copy** tab.
- Step 5** Choose the remote copy relationship that you want to remove from the consistency group.
- Step 6** Click **Remove**.
- Step 7** In the **Remove Remote Copy Relationship** dialog box, click **Submit**.
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## File Copy Services

The IBM Storwize V7000 Unified and the IBM SAN Volume Controller (SVCs) systems support the following methods to replicate data to and between different file systems:

- 1 Replicate file system—File system replication provides asynchronous replication of the file systems on one system to another system located remotely over an IP network. Replicating a file system creates copies of a file system between two systems, separated by some geographical distance to provide disaster recovery and business continuity. Asynchronous replication is normally used between the source and target systems where distance might affect the response time because of bandwidth shortages.

You can use the current system as the source or target for replication.

- if you want to use the current system as the source system for replication, the source system requires the management/admin IP address of the target system's management node and node pair definitions.



Before entering these source settings, you must first go to the target system and specify the target settings.

- If you want to use the current system as the target system for replication, the current (target) system requires the management/admin IP address of the source system's management node to establish the connection with the source system. You must go to the source system and specify the source settings.
- 2 Remote caching—Remote caching provides transparent data distribution among data centers and multiple remote locations over a wide area network (WAN). Remote caching fetches files on demand from the home system file set to the remote cluster cache in real time during normal operations. The data created, maintained, updated, and changed on the home system can be viewed and used on a cache system located anywhere in the WAN. Users can see only the files they have permission to see and access the files as if they are present locally. The data is revalidated when the user tries to access it, to ensure that the most recent file versions are available that can be prefetched by setting policies or the files can be pulled into cache on demand.

## Creating a Replication Destination

### Before You Begin

Configure the asynchronous replication relationship between the two (source and target) systems before configuring file system replication.

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **File Systems** tab.
  - Step 5** Choose the file system for which you want to create a replication destination.
  - Step 6** Click **Replication Destination**.
  - Step 7** In the **Replication Destination** dialog box, enter the ID value of the source cluster (Source cluster ID) that uses the local path for replication.
  - Step 8** Click **Submit**.
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## Removing a Replication Destination

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, navigate to the pod in which the storage account is added.
- Step 3** Choose the storage account type.
- Step 4** Click the **File Systems** tab.
- Step 5** Choose the file system for which you want to remove the replication destination at the specified path.
- Step 6** Click **Replication Destination**.
- Step 7** In the **Replication Destination** dialog box, click **Submit**.
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## Consistency Groups

A consistency group is a container for FlashCopy mappings, Global Mirror relationships, and Metro Mirror relationships. You can add many mappings or relationships to a consistency group, however FlashCopy mappings, Global Mirror relationships, and Metro Mirror relationships cannot appear in the same consistency group. When you use a consistency group, you can perform copy operations on the entire group instead of the individual mappings or relationships.

- FlashCopy consistency groups—You can group FlashCopy mappings into a consistency group so that they can be updated at the same time.
- Metro Mirror and Global Mirror consistency groups—You can group Metro Mirror or Global Mirror relationships into a consistency group so that they can be updated at the same time.

## Creating FlashCopy and Remote Copy Consistency Groups

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, navigate to the pod in which the storage account is added.
- Step 3** Choose the storage account type.
- Step 4** Click the **FlashCopy Consistency Groups** tab or the **Remote Copy Consistency Groups** tab.
- Step 5** Click **Create**.
- Step 6** In the **Create this Consistency Group** dialog box, enter the name for the consistency group.
- Step 7** Click **Submit**.
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## Renaming FlashCopy and Remote Copy Consistency Groups

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy Consistency Groups** tab or the **Remote Copy Consistency Groups** tab.
  - Step 5** Choose the consistency group that you want to rename.
  - Step 6** Click **Rename**.
  - Step 7** In the **Rename Consistency Group** dialog box, enter the new name for the consistency group.
  - Step 8** Click **Submit**.
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## Deleting FlashCopy and Remote Copy Consistency Groups

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, navigate to the pod in which the storage account is added.
  - Step 3** Choose the storage account type.
  - Step 4** Click the **FlashCopy Consistency Groups** tab or the **Remote Copy Consistency Groups** tab.
  - Step 5** Choose the consistency group that you want to delete.
  - Step 6** Click **Delete**.
  - Step 7** In the **Delete this Consistency Group** dialog box, click **Submit**.
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