Description of Protection relationships windows and dialog boxes

Active IQ Unified Manager

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Description of Protection relationships windows and dialog boxes

Learn about the resource pools page in Active IQ Unified Manager

The Resource Pools page displays existing resource pools and their members, and enables you to create, monitor, and manage resource pools for provisioning purposes.

Command buttons

The command buttons enable you to perform the following tasks:

- **Create**

  Launches the Create Resource Pool dialog box, which you can use to create resource pools.

- **Edit**

  Enables you to edit the name and description of the resource pools that you create.

- **Delete**

  Enables you to delete one or more resource pools.

Resource Pools list

The Resource Pools list displays (in tabular format) the properties of existing resource pools.

- **Resource Pool**

  Displays the name of the resource pool.

- **Description**

  Describes the resource pool.

- **SnapLock Type**

  Displays the SnapLock type that is being used by the aggregates in the resource pool. Valid values for SnapLock type are Compliance, Enterprise, and Non-SnapLock. A resource pool can contain aggregates of only one SnapLock type.

- **Total Capacity**

  Displays the total capacity (in MB, GB, and so on) of the resource pool.

- **Used Capacity**

  Displays the amount of space (in MB, GB, and so on) that is used in the resource pool.

- **Available Capacity**

Displays the amount of space (in MB, GB, and so on) that is available in the resource pool.

- **Used %**

  Displays the percentage of space that is used in the resource pool.

Members list command buttons

The Members list command buttons enable you to perform the following tasks:

- **Add**

  Enables you to add members to the resource pool.

- **Delete**

  Enables you to delete one or more members from the resource pool.

Members list

The Members list displays (in tabular format) the resource pool members and their properties when a resource pool is selected.

- **Status**

  Displays the current status of the member aggregate. The status can be Critical ( ), Error ( ), Warning (), or Normal ().

- **Aggregate Name**

  Displays the name of the member aggregate.

- **State**

  Displays the current state of the aggregate, which can be one of the following:

  - Offline

    Read or write access is not allowed.

  - Online

    Read and write access to the volumes that are hosted on this aggregate is allowed.

  - Restricted

    Limited operations (such as parity reconstruction) are allowed, but data access is not allowed.

  - Creating

    The aggregate is being created.

  - Destroying

    The aggregate is being destroyed.

- Failed

  The aggregate cannot be brought online.

- Frozen

  The aggregate is (temporarily) not serving requests.

- Inconsistent

  The aggregate has been marked corrupted; you should contact technical support.

- Iron Restricted

  Diagnostic tools cannot be run on the aggregate.

- Mounting

  The aggregate is in the process of mounting.

- Partial

  At least one disk was found for the aggregate, but two or more disks are missing.

- Quiescing

  The aggregate is being quiesced.

- Quiesced

  The aggregate is quiesced.

- Reverted

  The revert of an aggregate is completed.

- Unmounted

  The aggregate has been unmounted.

- Unmounting

  The aggregate is being taken offline.

- Unknown

  The aggregate is discovered, but the aggregate information is not yet retrieved by the Unified Manager server.

By default, this column is hidden.

- **Cluster**

  Displays the name of the cluster to which the aggregate belongs.

- **Node**

Displays the name of the node on which the aggregate resides.

- **Total Capacity**

  Displays the total capacity (in MB, GB, and so on) of the aggregate.

- **Used Capacity**

  Displays the amount of space (in MB, GB, and so on) that is used in the aggregate.

- **Available Capacity**

  Displays the amount of space (in MB, GB, and so on) that is available in the aggregate.

- **Used %**

  Displays the percentage of space that is used in the aggregate.

- **Disk Type**

  Displays the RAID configuration type, which can be one of the following:

  - RAID0: All the RAID groups are of type RAID0.
  - RAID4: All the RAID groups are of type RAID4.
  - RAID-DP: All the RAID groups are of type RAID-DP.
  - RAID-TEC: All the RAID groups are of type RAID-TEC.
  - Mixed RAID: The aggregate contains RAID groups of different RAID types (RAID0, RAID4, RAID-DP, and RAID-TEC). By default, this column is hidden.

Use the Create Resource Pool dialog box in Active IQ Unified Manager

You can use the Create Resource Pool dialog box to name and describe a new resource pool and to add aggregates to and delete aggregates from that resource pool.

Resource Pool Name

The text boxes enable you to add the following information to create a resource pool:

Enables you to specify a resource pool name.

Description

Enables you to describe a resource pool.

Members

Displays the members of the resource pool. You can also add and delete members.

Command buttons

The command buttons enable you to perform the following tasks:

- **Add**

  Opens the Aggregates dialog box so that you can add aggregates from a specific cluster to the resource pool. You can add aggregates from different clusters, but the same aggregates cannot be added to more than one resource pool.

- **Remove**

  Enables you to remove selected aggregates from the resource pool.

- **Create**

  Creates the resource pool. This button is not enabled until information has been entered in the Resource Pool Name or Description fields.

- **Cancel**

  Discards the changes and closes the Create Resource Pool dialog box.

Use the Edit Resource Pool dialog box in Active IQ Unified Manager

You can use the Edit Resource Pool dialog box to change the name and description of an existing resource pool. For example, if the original name and description is inaccurate or incorrect, you can change them so they are more precise.

Text boxes

The text boxes enable you to change the following information for the selected resource pool:

- **Resource Pool Name**

  Enables you to enter a new name.

- **Description**

  Enables you to enter a new description.

Command buttons

The command buttons enable you to perform the following tasks:

- **Save**

  Saves the changes to the resource pool name and description.

- **Cancel**

  Discards the changes and closes the Edit Resource Pool dialog box.

Use the aggregates dialog box in Active IQ Unified Manager

You can use the Aggregates dialog box to select the aggregates that you want to add to your resource pool.

Command buttons

The command buttons enable you to perform the following tasks:

- **Add**

  Adds the selected aggregates to the resource pool. The Add button is not enabled until at least one aggregate is selected.

- **Cancel**

  Discards the changes, and closes the Aggregates dialog box.

Aggregates list

The Aggregates list displays (in tabular format) the names and properties of monitored aggregates.

- **Status**

  Displays the current status of a volume. The status can be Critical ( ), Error ( ), Warning ( ), or Normal ( ).

  You can move the pointer over the status to view more information about the event or events generated for the volume.

- **Aggregate Name**

  Displays the name of the aggregate.

- **State**

  Displays the current state of the aggregate, which can be one of the following:

  - Offline

    Read or write access is not allowed.

  - Restricted

    Limited operations (such as parity reconstruction) are allowed, but data access is not allowed.

  - Online

    Read and write access to the volumes that are hosted on this aggregate is allowed.

  - Creating

    The aggregate is being created.

- Destroying

  The aggregate is being destroyed.

- Failed

  The aggregate cannot be brought online.

- Frozen

  The aggregate is (temporarily) not serving requests.

- Inconsistent

  The aggregate has been marked corrupted; you should contact technical support.

- Iron Restricted

  Diagnostic tools cannot be run on the aggregate.

- Mounting

  The aggregate is in the process of mounting.

- Partial

  At least one disk was found for the aggregate, but two or more disks are missing.

- Quiescing

  The aggregate is being quiesced.

- Quiesced

  The aggregate is quiesced.

- Reverted

  The revert of an aggregate is completed.

- Unmounted

  The aggregate is offline.

- Unmounting

  The aggregate is being taken offline.

- Unknown

  The aggregate is discovered, but the aggregate information is not yet retrieved by the Unified Manager server.

- **Cluster**

  Displays the name of the cluster on which the aggregate resides.

- **Node**

  Displays the name of the storage controller that contains the aggregate.

- **Total Capacity**

  Displays the total data size (in MB, GB, and so on) of the aggregate. By default, this column is hidden.

- **Committed Capacity**

  Displays the total space (in MB, GB, and so on) that is committed for all the volumes in the aggregate. By default, this column is hidden.

- **Used Capacity**

  Displays the amount of space (in MB, GB, and so on) that is used in the aggregate.

- **Available Capacity**

  Displays the amount of space (in MB, GB, and so on) that is available for data in the aggregate. By default, this column is hidden.

- **Available %**

  Displays the percentage of space that is available for data in the aggregate. By default, this column is hidden.

- **Used %**

  Displays the percentage of space that is used by data in the aggregate.

- **RAID Type**

  Displays the RAID type of the selected volume. The RAID type can be RAID0, RAID4, RAID-DP, RAID-TEC, or Mixed RAID.

Learn about the jobs page in Active IQ Unified Manager

The Jobs page enables you to view the current status and other information about all partner application protection jobs that are currently running, as well as jobs that have completed. You can use this information to see which jobs are still running and whether a job has succeeded or failed.

Command buttons

The command buttons enable you to perform the following tasks:

- **Abort**

  Aborts the selected job. This option is available only if the selected job is running.

- **Retry**

  Restarts a failed job of type Protection Configuration or Protection Relationship Operation. You can retry

only one failed job at a time. If more than one failed job is selected, the **Retry** button is disabled. You cannot retry failed storage service jobs.

- **Refresh**

  Refreshes the list of jobs and the information associated with them.

Jobs list

The Jobs list displays, in tabular format, a list of the jobs that are in progress. By default, the list displays only the jobs generated within the past week. You can use column sorting and filtering to customize which jobs are displayed.

- **Status**

  Displays the current status of a job. The status can be Error (⚠️) or Normal (✅).

- **Job Id**

  Displays the identification number of the job. By default, this column is hidden.

  The job identification number is unique and is assigned by the server when it starts the job. You can search for a particular job by entering the job identification number in the text box provided by the column filter.

- **Name**

  Displays the name of the job.

- **Type**

  Displays the job type. The job types are as follows:

  - **Cluster Acquisition**

    A Workflow Automation job is rediscovering a cluster.

  - **Protection Configuration**

    A protection job is initiating Workflow Automation workflows, such as cron schedules, SnapMirror policy creation, and so on.

  - **Protection Relationship Operation**

    A protection job is running SnapMirror operations.

  - **Protection Workflow Chain**

    A Workflow Automation job is executing multiple workflows.

  - **Restore**

    A restore job is running.

  - **Cleanup**

    The job is cleaning up storage service member artifacts that are no longer needed for restore

purposes.

- **Conform**

  The job is checking the configuration of storage service members to ensure that they conform.

- **Destroy**

  The job is destroying a storage service.

- **Import**

  The job is importing unmanaged storage objects into an existing storage service.

- **Modify**

  The job is modifying attributes of an existing storage service.

- **Subscribe**

  The job is subscribing members to a storage service.

- **Unsubscribe**

  The job is unsubscribing members from a storage service.

- **Update**

  A protection update job is running.

- **WFA Configuration**

  A Workflow Automation job is pushing cluster credentials and synchronizing database caches.

- **State**

  Displays the running state of the job. State options are as follows:

  - **Aborted**

    The job has been aborted.

  - **Aborting**

    The job is in the process of aborting.

  - **Completed**

    The job has finished.

  - **Running**

    The job is running.

- **Submitted Time**

Displays the time the job was submitted.

- **Duration**

  Displays the amount of time the job took to complete. This column is displayed by default.

- **Completed Time**

  Displays the time the job finished. By default, this column is hidden.

Learn about the job details page in Active IQ Unified Manager

The Job details page enables you to view status and other information about specific protection job tasks that are running, that are queued, or that have completed. You can use this information to monitor protection job progress and to troubleshoot job failures.

Job summary

The job summary displays the following information:

- Job ID
- Type
- State
- Submitted Time
- Completed Time
- Duration

Command buttons

The command buttons enable you to perform the following tasks:

- **Refresh**

  Refreshes the task list and the properties associated with each task.

- **View Jobs**

  Returns you to the Jobs page.

Job tasks list

The Job tasks list displays in a table all the tasks associated with a specific job and the properties related to each task.

- **Started Time**

  Displays the day and time the task started. By default, the most recent tasks are displayed at the top of the column and older tasks are displayed at the bottom.

- **Type**

  Displays the type of task.

- **State**

  The state of a particular task:

  - **Completed**

    The task has finished.

  - **Queued**

    The task is about to run.

  - **Running**

    The task is running.

  - **Waiting**

    A job has been submitted and some associated tasks are waiting to be queued and executed.

- **Status**

  Displays the task status:

  - **Error (⚠)**

    The task failed.

  - **Normal (✅)**

    The task succeeded.

  - **Skipped (↪)**

    A task failed, resulting in subsequent tasks being skipped.

- **Duration**

  Displays the elapsed time since the task began.

- **Completed Time**

  Displays the time the task completed. By default, this column is hidden.

- **Task ID**

  Displays the GUID that identifies an individual task for a job. The column can be sorted and filtered. By default, this column is hidden.

- **Dependency order**

  Displays an integer representing the sequence of tasks in a graph, with zero being assigned to the first

task. By default, this column is hidden.

- **Task Details pane**

  Displays additional information about each job task, including the task name, task description, and, if the task failed, a reason for the failure.

- **Task Messages pane**

  Displays messages specific to the selected task. Messages might include a reason for the error and suggestions for resolving it. Not all tasks display task messages.

Use the Advanced Secondary Settings dialog box in Active IQ Unified Manager

You can use the Advanced Secondary Settings dialog box to enable version-flexible replication, multiple copy backup, and space-related settings on a secondary volume. You might use the Advanced Secondary Settings dialog box when you want to change enable or disable the current settings.

Space-related settings maximize the amount of data being stored, including the following: deduplication, data compression, autogrow, and space guarantee.

The dialog box includes the following fields:

- **Enable Version-Flexible Replication**

  Enables SnapMirror with version-flexible replication. Version-flexible replication enables SnapMirror protection of a source volume even if the destination volume is running under an earlier version of ONTAP than that of the source volume.

  - Enable Backup

    If version-flexible replication is enabled, also enables multiple Snapshot copies of the SnapMirror source data to be transferred to and retained at the SnapMirror destination.

- **Enable Deduplication**

  Enables deduplication on the secondary volume in a SnapVault relationship so that duplicate data blocks are eliminated to achieve space savings. You might use deduplication when space savings are at least 10 percent and when data overwrite rate is not rapid. Deduplication is often used for virtualized environments, file shares, and backup data. This setting is disabled by default. When enabled, this operation is initiated after each transfer.

  - Enable Compression

    Enables transparent data compression. You might use compression when space savings are at least 10 percent, when the potential overhead is acceptable, and when there are sufficient system resources for compression to complete during nonpeak hours. In a SnapVault relationship, this setting is disabled by default. Compression is available only when deduplication is selected.

  - Compress Inline

Enables immediate space savings by compressing data before writing data to disk. You might use inline compression when your system has no more than 50 percent utilization during peak hours, and when the system can accommodate new writes and additional CPU during peak hours. This setting is available only when “Enable Compression” is selected.

- **Enable Autogrow**

  Enables you to automatically grow the destination volume when the free space percentage is below the specified threshold, as long as space is available on the associated aggregate.

- **Maximum Size**

  Sets the maximum percentage to which a volume can grow. The default is 20 percent greater than the source volume size. A volume does not grow automatically if the current size is greater than or equal to the maximum autogrow percentage. This field is enabled only when the autogrow setting is enabled.

- **Increment Size**

  Specifies the percentage increment by which the volume automatically grows before reaching the maximum percentage of the source volume.

- **Space Guarantee**

  Ensures that enough space is allocated on the secondary volume so that data transfers always succeed. The space guarantee setting can be one of the following:

  - File
  - Volume
  - None
    For example, you might have a 200 GB volume that contains files totaling 50 GB; however, those files hold only 10 GB of data. Volume guarantee allocates 200 GB to the destination volume, regardless of contents on the source. File guarantee allocates 50 GB to ensure that enough space is reserved for files on the source; selecting None in this scenario means that only 10 GB is allocated on the destination for the actual space used by file data on the source.

  The space guarantee is set to Volume by default.

Command buttons

The command buttons enable you to perform the following tasks:

- **Apply**

  Saves the selected efficiency settings and applies them when you click **Apply** in the Configure Protection dialog box.

- **Cancel**

  Discards your selections and closes the Advanced Destination Settings dialog box.

Use the Advanced Destination Settings dialog box in Active IQ Unified Manager

You can use the Advanced Destination Settings dialog box to enable space guarantee settings on a destination volume. You might select advanced settings when space guarantee is disabled on the source, but you want it enabled on the destination. The settings for deduplication, compression, and autogrow in a SnapMirror relationship are inherited from the source volume and cannot be changed.

Space Guarantee

Ensures that enough space is allocated on the destination volume so that data transfers always succeed. The space guarantee setting can be one of the following:

- File
- Volume
- None

For example, you might have a 200-GB volume that contains files totaling 50 GB; however, those files hold only 10 GB of data. Volume guarantee allocates 200 GB to the destination volume, regardless of contents on the source. File guarantee allocates 50 GB to ensure that enough space is reserved for source files on the destination; selecting **None** in this scenario means that only 10 GB is allocated on the destination for the actual space used by file data on the source.

The space guarantee is set to Volume by default.

Use the Restore dialog box in Active IQ Unified Manager

You can use the Restore dialog box to restore data to a volume from a specific Snapshot copy.

Restore from

The Restore from area enables you to specify from where you want to restore data.

- **Volume**

  Specifies the volume from which you want to restore data. By default, the volume on which you initiated the restore action is selected. You can select a different volume from the drop-down list that contains all the volumes with protection relationships to the volume on which you initiated the restore action.

- **Snapshot copy**

  Specifies which Snapshot copy you want to use to restore data. By default, the most recent Snapshot copy is selected. You can also select a different Snapshot copy from the drop-down list. The Snapshot copy list changes according to which volume is selected.

- **List maximum of 995 files and directories**

  By default a maximum of 995 objects are shown in the list. You can deselect this checkbox if you want to

view all objects within the selected volume. This operation may take some time if the number of items is very large.

Select items to restore

The Select items to restore area enables you to select either the entire volume or specific files and folders you want to restore. You can select a maximum of 10 files, folders, or a combination of both. When the maximum number of items is selected, the item selection check boxes are disabled.

- **Path field**

  Displays the path to the data you want to restore. You can either navigate to the folder and files you want to restore, or you can type the path. This field is empty until you select or type a path. Clicking after you have chosen a path moves you up one level in the directory structure.

- **Folders and files list**

  Displays the contents of the path you entered. By default, the root folder is initially displayed. Clicking a folder name displays the contents of the folder.

You can select items to restore as follows:

- When you enter the path with a particular file name specified in the path field, the specified file is displayed in the Folders and Files.
- When you enter a path without specifying a particular file, the contents of the folder are displayed in the Folders and Files list, and you can select up to 10 files, folders, or a combination of both to restore.

  If a folder contains more than 995 items, a message displays to indicate there are too many items to display, and if you proceed with the operation all items in the specified folder are restored. You can deselect the “List maximum of 995 files and directories” checkbox if you want to view all objects within the selected volume.

You cannot restore NTFS file streams.

Restore to

The Restore to area enables you to specify where you want to restore the data.

- **Original Location in Volume_Name**

  Restores the selected data to the directory on the source from which the data was originally backed up.

- **Alternate Location**

  Restores the selected data to a new location:

  - Restore Path

    Specifies an alternate path for restoring the selected data. The path must already exist. You can use the **Browse** button to navigate to the location where you want the data restored, or you can enter the path manually using the format `cluster://svm/volume/path`.

  - Preserve directory hierarchy

When checked, preserves the structure of the original file or directory. For example, if the source is /A/B/C/myFile.txt and the destination is /X/Y/Z, Unified Manager restores the data using the following directory structure on the destination: /X/Y/Z/A/B/C/myFile.txt.

Command buttons

The command buttons enable you to perform the following tasks:

- **Cancel**

  Discards your selections and closes the Restore dialog box.

- **Restore**

  Applies your selections and begins the restore process.

Use the Browse Directories dialog box in Active IQ Unified Manager

You can use the Browse Directories dialog box when you want to restore data to a directory on a cluster and SVM that is different from the original source. The original source cluster and volume are selected by default.

The Browse Directories dialog box enables you to select the cluster, SVM, volume, and directory path to which you want data restored.

- **Cluster**

  Lists the available cluster destinations to which you can restore. By default, the cluster of the original source volume is selected.

- **SVM drop-down list**

  Lists the available SVM available for the selected cluster. By default, the SVM of the original source volume is selected.

- **Volume**

  Lists all of the read/write volumes in a selected SVM. You can filter the volumes by name and by space available. The volume with the most space is listed first, and so on, in descending order. By default, the original source volume is selected.

- **File path text box**

  Enables you to type the file path to which you want data restored. The path you enter must already exist.

- **Name**

  Displays the names of the available folders for the selected volume. Clicking a folder in the Name list displays the subfolders, if any exist. Files contained in the folders are not displayed. Clicking after you have selected a folder moves you up one level in the directory structure.

Command buttons

The command buttons enable you to perform the following tasks:

- **Select Directory**

  Applies your selections and closes the Browse Directories dialog box. If no directory is selected, this button is disabled.

- **Cancel**

  Discards your selections and closes the Browse Directories dialog box.

Use the Configure Protection dialog box in Active IQ Unified Manager

You can use the Configure Protection dialog box to create SnapMirror and SnapVault relationships for all read, write, and data protection volumes on clusters to ensure that the data on a source volume or primary volume is replicated.

Source tab

- **Topology view**

  Displays a visual representation of the relationship that you are creating. The source in the topology is highlighted by default.

- **Source Information**

  Displays details about the selected source volumes, including the following information:

  - Source cluster name
  - Source SVM name
  - Cumulative volume total size

    Displays the total size of all the source volumes that are selected.

  - Cumulative volume used size

    Displays the cumulative volume used size for all the selected source volumes.

  - Source volume

    Displays the following information in a table:

    - Source Volume

      Displays the names of the selected source volumes.

    - Type

      Displays the volume type.

- SnapLock Type

  Displays the SnapLock type of the volume. The options are Compliance, Enterprise, and Non-SnapLock.

- Snapshot Copy

  Displays the Snapshot copy that is used for the baseline transfer. If the source volume is read/write, the value of Default in the Snapshot copy column indicates that a new Snapshot copy is created by default, and is used for the baseline transfer. If the source volume is a data protection volume, the value of Default in the Snapshot copy column indicates that no new Snapshot copy is created, and all existing Snapshot copies are transferred to the destination. Clicking the Snapshot copy value displays a list of Snapshot copies from which you can select an existing Snapshot copy to use for the baseline transfer. You cannot select a different default Snapshot copy if the source type is data protection.

SnapMirror tab

Enables you to specify a destination cluster, storage virtual machine (SVM), and aggregate for a protection relationship, as well as a naming convention for destinations while creating a SnapMirror relationship. You can also specify a SnapMirror policy and schedule.

- **Topology view**

  Displays a visual representation of the relationship that you are creating. The SnapMirror destination resource in the topology is highlighted by default.

- **Destination Information**

  Enables you to select the destination resources for a protection relationship:

  - Advanced link

    Launches the Advanced Destination Settings dialog box when you are creating a SnapMirror relationship.

  - Cluster

    Lists the clusters that are available as protection destination hosts. This field is required.

  - storage virtual machine (SVM)

    Lists the SVMs that are available on the selected cluster. A cluster must be selected before the SVM list is populated. This field is required.

  - Aggregate

    Lists the aggregates that are available on the selected SVM. A cluster must be selected before the Aggregate list is populated. This field is required. The Aggregate list displays the following information:

    - Rank

      When multiple aggregates satisfy all the requirements for a destination, the rank indicates the priority in which the aggregate is listed, according to the following conditions:

A. An aggregate that is located on a different node than the source volume node is preferred to enable fault domain separation.

B. An aggregate on a node with fewer volumes is preferred to enable load balancing across nodes in a cluster.

C. An aggregate that has more free space than other aggregates is preferred to enable capacity balancing. A rank of 1 means that the aggregate is the most preferred according to the three criteria.

- Aggregate Name

  Name of the aggregate

- Available Capacity
- Amount of space that is available on the aggregate for data
- Resource Pool

  Name of the resource pool to which the aggregate belongs

◦ Naming Convention

Specifies the default naming convention that is applied to the destination volume. You can accept the naming convention that is provided, or you can create a custom one. The naming convention can have the following attributes: %C, %M, %V, and %N, where %C is the cluster name, %M is the SVM name, %V is the source volume, and %N is the topology destination node name.

The naming convention field is highlighted in red if your entry is invalid. Clicking the “Preview Name” link displays a preview of the naming convention that you entered, and the preview text updates dynamically as you type a naming convention in the text field. A suffix between 001 and 999 is appended to the destination name when the relationship is created, replacing the nnn that displays in the preview text, with 001 being assigned first, 002 assigned second, and so on.

- **Relationship Settings**

Enables you to specify the maximum transfer rate, SnapMirror policy, and schedule that the protection relationship uses:

◦ Max Transfer Rate

Specifies the maximum rate at which data is transferred between clusters over the network. If you choose not to use a maximum transfer rate, the baseline transfer between relationships is unlimited.

◦ SnapMirror Policy

Specifies the ONTAP SnapMirror policy for the relationship. The default is DPDefault.

◦ Create Policy

Launches the Create SnapMirror Policy dialog box, which enables you to create and use a new SnapMirror policy.

◦ SnapMirror Schedule

Specifies the ONTAP SnapMirror policy for the relationship. Available schedules include None, 5min, 8hour, daily, hourly, and weekly. The default is None, indicating that no schedule is associated with the

relationship. Relationships without schedules have no lag status values unless they belong to a storage service.

- Create Schedule

  Launches the Create Schedule dialog box, which enables you to create a new SnapMirror schedule.

SnapVault tab

Enables you to specify a secondary cluster, SVM, and aggregate for a protection relationship, as well as a naming convention for secondary volumes while creating a SnapVault relationship. You can also specify a SnapVault policy and schedule.

- **Topology view**

  Displays a visual representation of the relationship that you are creating. The SnapVault secondary resource in the topology is highlighted by default.

- **Secondary Information**

  Enables you to select the secondary resources for a protection relationship:

  - Advanced link

    Launches the Advanced Secondary Settings dialog box.

  - Cluster

    Lists the clusters that are available as secondary protection hosts. This field is required.

  - storage virtual machine (SVM)

    Lists the SVMs that are available on the selected cluster. A cluster must be selected before the SVM list is populated. This field is required.

  - Aggregate

    Lists the aggregates that are available on the selected SVM. A cluster must be selected before the Aggregate list is populated. This field is required. The Aggregate list displays the following information:

    - Rank

      When multiple aggregates satisfy all the requirements for a destination, the rank indicates the priority in which the aggregate is listed, according to the following conditions:

      A. An aggregate that is located on a different node than the primary volume node is preferred to enable fault domain separation.
      B. An aggregate on a node with fewer volumes is preferred to enable load balancing across nodes in a cluster.
      C. An aggregate that has more free space than other aggregates is preferred to enable capacity balancing. A rank of 1 means that the aggregate is the most preferred according to the three criteria.

    - Aggregate Name

Name of the aggregate

- Available Capacity
- Amount of space that is available on the aggregate for data
- Resource Pool

  Name of the resource pool to which the aggregate belongs

◦ Naming Convention

Specifies the default naming convention that is applied to the secondary volume. You can accept the naming convention that is provided, or you can create a custom one. The naming convention can have the following attributes: %C, %M, %V, and %N, where %C is the cluster name, %M is the SVM name, %V is the source volume, and %N is the topology secondary node name.

The naming convention field is highlighted in red if your entry is invalid. Clicking the “Preview Name” link displays a preview of the naming convention that you entered, and the preview text updates dynamically as you type a naming convention in the text field. If you type an invalid value, the invalid information displays as red question marks in the preview area. A suffix between 001 and 999 is appended to the secondary name when the relationship is created, replacing the nnn that displays in the preview text, with 001 being assigned first, 002 assigned second, and so on.

- **Relationship Settings**

Enables you to specify the maximum transfer rate, SnapVault policy, and SnapVault schedule that the protection relationship uses:

◦ Max Transfer Rate

Specifies the maximum rate at which data is transferred between clusters over the network. If you choose not to use a maximum transfer rate, the baseline transfer between relationships is unlimited.

◦ SnapVault Policy

Specifies the ONTAP SnapVault policy for the relationship. The default is XDPDefault.

◦ Create Policy

Launches the Create SnapVault Policy dialog box, which enables you to create and use a new SnapVault policy.

◦ SnapVault Schedule

Specifies the ONTAP SnapVault schedule for the relationship. Available schedules include None, 5min, 8hour, daily, hourly, and weekly. The default is None, indicating that no schedule is associated with the relationship. Relationships without schedules have no lag status values unless they belong to a storage service.

◦ Create Schedule

Launches the Create Schedule dialog box, which enables you to create a SnapVault schedule.

Command buttons

The command buttons enable you to perform the following tasks:

- **Cancel**

  Discards your selections, and closes the Configure Protection dialog box.

- **Apply**

  Applies your selections, and begins the protection process.

Use the Create Schedule dialog box in Active IQ Unified Manager

The Create Schedule dialog box enables you to create a basic or advanced protection schedule for SnapMirror and SnapVault relationship transfers. You might create a new schedule to increase the frequency of data transfers due to frequent data updates, or you might create a less frequent schedule when data changes infrequently.

Schedules cannot be configured for SnapMirror Synchronous relationships.

- **Destination Cluster**

  The name of the cluster you selected in the SnapVault tab or SnapMirror tab of the Configure Protection dialog box.

- **Schedule Name**

  The name you provide for the schedule. Schedule names can consist of the characters A through Z, a through z, 0 through 9, as well as any of the following special characters: ! @ # $ % ^ & * ( ) _ -. Schedule names may not include the following characters: < >.

- **Basic or Advanced**

  The schedule mode you want to use.

  Basic mode includes the following elements:

  - Repeat

    How often a scheduled transfer occurs. Choices include hourly, daily, and weekly.

  - Day

    When a repeat of weekly is selected, the day of the week a transfer occurs.

  - Time

    When Daily or Weekly is selected, the time of day a transfer occurs.

  Advanced mode includes the following elements:

  - Months

A comma-separated numerical list representing the months of the year. Valid values are 0 through 11, with zero representing January, and so on. This element is optional. Leaving the field blank implies that transfers occur every month.

- Days

  A comma-separated numerical list representing the day of the month. Valid values are 1 through 31. This element is optional. Leaving the field blank implies that a transfer occurs every day of the month.

- Weekdays

  A comma-separated numerical list representing the days of the week. Valid values are 0 through 6, with 0 representing Sunday, and so on. This element is optional. Leaving the field blank implies that a transfer occurs every day of the week. If a day of the week is specified but a day of the month is not specified, a transfer occurs only on the specified day of the week and not every day.

- Hours

  A comma-separated numerical list representing the number of hours in a day. Valid values are 0 through 23, with 0 representing midnight. This element is optional.

- Minutes

  A comma-separated numerical list representing the minutes in an hour. Valid values are 0 through 59. This element is required.

Use the Create SnapMirror Policy dialog box in Active IQ Unified Manager

The Create SnapMirror Policy dialog box enables you to create a policy to set the priority for SnapMirror transfers. You use policies to maximize the efficiency of transfers from the source to the destination.

- **Destination Cluster**

  The name of the cluster you selected in the SnapMirror tab of the Configure Protection dialog box.

- **Destination SVM**

  The name of the SVM you selected in the SnapMirror tab of the Configure Protection dialog box.

- **Policy Name**

  The name you provide for the new policy. Policy names can consist of the characters A through Z, a through z, 0 through 9, period (.), hyphen (-), and underscore (_).

- **Transfer Priority**

  The priority at which a transfer runs for asynchronous operations. You can select either Normal or Low. Transfer relationships with policies that specify a normal transfer priority run before those with policies that specify a low transfer priority.

- **Comment**

An optional field in which you can add comments about the policy.

- **Transfer Restart**

  Indicates what restart action to take when a transfer is interrupted by an abort operation or any type of failure, such as a network outage. You can select one of the following:

  - Always

    Specifies that a new Snapshot copy is created before restarting a transfer, then, if one exists, the transfer is restarted from a checkpoint, followed by an incremental transfer from the newly created Snapshot copy.

  - Never

    Specifies that interrupted transfers are never restarted.

Command buttons

The command buttons enable you to perform the following tasks:

- **Cancel**

  Discards the selections and closes the Configure Protection dialog box.

- **Apply**

  Applies your selections and begins the protection process.

Use the Create SnapVault Policy dialog box in Active IQ Unified Manager

The Create SnapVault Policy dialog box enables you to create a policy to set the priority for SnapVault transfers. You use policies to maximize the efficiency of transfers from the primary to the secondary volume.

- **Destination Cluster**

  The name of the cluster that you selected in the SnapVault tab of the Configure Protection dialog box.

- **Destination SVM**

  The name of the SVM that you selected in the SnapVault tab of the Configure Protection dialog box.

- **Policy Name**

  The name you provide for the new policy. Policy names can consist of the characters A through Z, a through z, 0 through 9, period (.), hyphen (-), and underscore (_).

- **Transfer Priority**

  The priority at which the transfer is run. You can select either Normal or Low. Transfer relationships with policies that specify a normal transfer priority run before those with policies that specify a low transfer priority. The default setting is Normal.

- **Comment**

  An optional field in which you can a add comment of up to 255 characters about the SnapVault policy.

- **Ignore Access Time**

  Specifies whether incremental transfers are ignored for files that have only their access time changed.

- **Replication Label**

  Lists in a table the rules associated with Snapshot copies selected by ONTAP that have a specific replication label in a policy. The following information and actions are also available:

  - Command buttons

    The command buttons enable you to perform the following actions:

    - Add

      Enables you to create a Snapshot copy label and retention count.

    - Edit Retention Count

      Enables you to change the retention count for an existing Snapshot copy label. The retention count must be a number between 1 and 251. The sum of all retention counts for all rules cannot exceed 251.

    - Delete

      Enables you to delete an existing Snapshot copy label.

  - Snapshot Copy Label

    Displays the Snapshot copy label. If you select one or more volumes with the same local Snapshot copy policy, an entry for each label in the policy is displayed. If you select multiple volumes that have two or more local Snapshot copy policies, the table displays all labels from all policies

  - Schedule

    Displays the schedule associated with each Snapshot copy label. If a label has more than one schedule associated with it, the schedules for that label are displayed in a comma-separated list. If you select multiple volumes with the same label but with different schedules, the schedule displays “Various” to indicate that more than one schedule is associated with the selected volumes.

  - Destination Retention Count

    Displays the number of Snapshot copies with the specified label that are retained on the SnapVault secondary. Retention counts for labels with multiple schedules displays the sum of retention counts of each label and schedule pair. If you select multiple volumes with two or more local Snapshot copy policies, the retention count is empty.

Edit a protection relationship in Active IQ Unified Manager

You can edit an existing protection relationship to change the maximum transfer rate, the protection policy, or the protection schedule.

Destination Information

- **Destination Cluster**

  The name of the selected destination cluster.

- **Destination SVM**

  The name of the selected SVM

- **Relationship Settings**

  Enables you to specify the maximum transfer rate, SnapMirror policy, and schedule that the protection relationship uses:

  - Max Transfer Rate

    Specifies the maximum rate at which baseline data is transferred between clusters over the network. When selected, network bandwidth is limited to the value you specify. You can enter a numerical value and then select either kilobytes per second (KBps), megabytes per second (MBps), gigabytes per second (GBps), or terabytes per second (TBps). The maximum transfer rate that you specify must be greater than 1 KBps and less than 4 TBps. If you choose not to use a maximum transfer rate, the baseline transfer between relationships is unlimited. If the primary cluster and the secondary cluster are the same, this setting is disabled.

  - SnapMirror Policy

    Specifies the ONTAP SnapMirror policy for the relationship. The default is DPDefault.

  - Create Policy

    Launches the Create SnapMirror Policy dialog box, which enables you to create and use a new SnapMirror policy.

  - SnapMirror Schedule

    Specifies the ONTAP SnapMirror policy for the relationship. Available schedules include None, 5min, 8hour, daily, hourly, and weekly. The default is None, indicating that no schedule is associated with the relationship. Relationships without schedules have no lag status values unless they belong to a storage service.

  - Create Schedule

    Launches the Create Schedule dialog box, which enables you to create a new SnapMirror schedule.

Command buttons

The command buttons enable you to perform the following tasks:

- **Cancel**

  Discards the selections and closes the Configure Protection dialog box.

- **Submit**

  Applies your selections and closes the Edit Relationship dialog box.

Use the Initialize/Update dialog box in Active IQ Unified Manager

The Initialize/Update dialog box enables you to perform a first-time baseline transfer on a new protection relationship, or to update a relationship if it is already initialized and you want to perform a manual, unscheduled, incremental update.

Transfer Options tab

The Transfer Options tab enables you to change the initialization priority of a transfer and to change the bandwidth used during transfers.

- **Transfer Priority**

  The priority at which the transfer is run. You can select either Normal or Low. Relationships with policies that specify a normal transfer priority run before those that specify a low transfer priority. Normal is selected by default.

- **Max Transfer Rate**

  Specifies the maximum rate at which data is transferred between clusters over the network. If you choose not to use a maximum transfer rate, the baseline transfer between relationships is unlimited. If you select more than one relationship with different maximum transfer rates, you can specify one of the following maximum transfer rate settings:

  - Use values specified during individual relationship setup or edit

    When selected, initialization and update operations use the maximum transfer rate specified at the time of each relationship's creation or edit. This field is available only when multiple relationships with different transfer rates are being initialized or updated.

  - Unlimited

    Indicates that there is no bandwidth limitation on transfers between relationships. This field is available only when multiple relationships with different transfer rates are being initialized or updated.

  - Limit bandwidth to

    When selected, network bandwidth is limited to the value you specify. You can enter a numerical value and then select either kilobytes per second (KBps), Megabytes per second (MBps), Gigabytes per second (GBps), or Terabytes per second (TBps). The maximum transfer rate that you specify must be greater than 1 KBps and less than 4 TBps.

Source Snapshot Copies tab

The Source Snapshot Copies tab displays the following information about the source Snapshot copy that is used for the baseline transfer:

- **Source Volume**

  Displays the names of the corresponding source volumes.

- **Destination Volume**

Displays the names of the selected destination volumes.

- **Source Type**

  Displays the volume type. The type can be either Read/write or Data Protection.

- **Snapshot Copy**

  Displays the Snapshot copy that is used for the data transfer. Clicking the Snapshot copy value displays the Select Source Snapshot Copy dialog box, in which you can select a specific Snapshot copy for your transfer, depending on the type of protection relationship that you have and the operation that you are performing. The option to specify a different Snapshot copy is not available for data protection type sources.

Command buttons

The command buttons enable you to perform the following tasks:

- **Cancel**

  Discards your selections and closes the Initialize/Update dialog box.

- **Submit**

  Saves your selections and starts the initialize or update job.

Use the resynchronize dialog box in Active IQ Unified Manager

The Resynchronize dialog box enables you to resynchronize data on a SnapMirror or SnapVault relationship that was previously broken and then the destination was made a read/write volume. You might also resynchronize when a required common Snapshot copy on the source volume is deleted causing SnapMirror or SnapVault updates to fail.

Resynchronization Options tab

The Resynchronization Options tab enables you to set the transfer priority and the maximum transfer rate for the protection relationship that you are resynchronizing.

- **Transfer Priority**

  The priority at which the transfer is run. You can select either Normal or Low. Relationships with policies that specify a normal transfer priority run before those with policies that specify a low transfer priority.

- **Max Transfer Rate**

  Specifies the maximum rate at which data is transferred between clusters over the network. When selected, network bandwidth is limited to the value that you specify. You can enter a numerical value and then select either kilobytes per second (KBps), megabytes per second (MBps), gigabytes per second (GBps), or TBps. If you choose not to use a maximum transfer rate, the baseline transfer between relationships is unlimited.

Source Snapshot Copies tab

The Source Snapshot Copies tab displays the following information about the source Snapshot copy that is used for the baseline transfer:

- **Source Volume**

  Displays the names of the corresponding source volumes.

- **Destination Volume**

  Displays the names of the selected destination volumes.

- **Source Type**

  Displays the volume type: either Read/write or Data Protection.

- **Snapshot Copy**

  Displays the Snapshot copy that is used for the data transfer. Clicking the Snapshot copy value displays the Select Source Snapshot Copy dialog box, in which can select a specific Snapshot copy for your transfer, depending on the type of protection relationship you have and the operation you are performing.

Command buttons

- **Submit**

  Begins the resynchronization process and closes the Resynchronize dialog box.

- **Cancel**

  Cancels your selections and closes the Resynchronize dialog box.

Use the Select Source Snapshot Copy dialog box in Active IQ Unified Manager

You use the Select Source Snapshot Copy dialog box to select a specific Snapshot copy to transfer data between protection relationships, or you select the default behavior, which varies depending on whether you are initializing, updating, or resynchronizing a relationship, and whether the relationship is a SnapMirror or SnapVault.

Default

Enables you to select the default behavior for determining which Snapshot copy is used for initialize, update, and resynchronize transfers for SnapVault and SnapMirror relationships.

If you are performing a SnapVault transfer, the default behavior for each operation is as follows:

Operation	Default SnapVault behavior when source is read/write	Default SnapVault behavior when source is Data Protection (DP)
Initialize	Creates a new Snapshot copy and transfers it.	Transfers the last exported Snapshot copy.

Operation	Default SnapVault behavior when source is read/write	Default SnapVault behavior when source is Data Protection (DP)
Update	Transfers only labeled Snapshot copies, as specified in the policy.	Transfers the last exported Snapshot copy.
Resynchronize	Transfers all labeled Snapshot copies created after the newest common Snapshot copy.	Transfers the newest labeled Snapshot copy.

If you are performing a SnapMirror transfer, the default behavior for each operation is as follows:

Operation	Default SnapMirror behavior	Default SnapMirror behavior when relationship is second hop in a SnapMirror to SnapMirror cascade
Initialize	Creates a new Snapshot copy and transfers it and all Snapshot copies created prior to the new Snapshot copy.	Transfers all Snapshot copies from the source.
Update	Creates a new Snapshot copy and transfers it and all Snapshot copies created prior to the new Snapshot copy.	Transfers all Snapshot copies.
Resynchronize	Creates a new Snapshot copy and then transfers all Snapshot copies from the source.	Transfers all Snapshot copies from the secondary volume to the tertiary volume, and deletes any data added after creation of the newest common Snapshot copy.

Existing Snapshot Copy

Enables you to select an existing Snapshot copy from the list if Snapshot copy selection is allowed for that operation.

- **Snapshot Copy**

  Displays the existing Snapshot copies from which you can select for a transfer.

- **Date Created**

  Displays the date and time the Snapshot copy was created. Snapshot copies are listed from most recent to least recent, with the most recent at the top of the list.

If you are performing a SnapVault transfer and you want to select an existing Snapshot copy to transfer from a source to a destination, the behavior for each operation is as follows:

Operation	SnapVault behavior when specifying a Snapshot copy	SnapVault behavior when specifying a Snapshot copy in a cascade
Initialize	Transfers the specified Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.
Update	Transfers the specified Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.
Resynchronize	Transfers the selected Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.

If you are performing a SnapMirror transfer and you want to select an existing Snapshot copy to transfer from a source to a destination, the behavior for each operation is as follows:

Operation	SnapMirror behavior when specifying a Snapshot copy	SnapMirror behavior when specifying a Snapshot copy in a cascade
Initialize	Transfers all Snapshot copies on the source, up to the specified Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.
Update	Transfers all Snapshot copies on the source, up to the specified Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.
Resynchronize	Transfers all Snapshot copies from the source, up to the selected Snapshot copy, and then deletes any data added after creation of the newest common Snapshot copy.	Source Snapshot copy selection is not supported for data protection volumes.

Command buttons

The command buttons enable you to perform the following tasks:

- **Submit**

  Submits your selections and closes the Select Source Snapshot Copy dialog box.

- **Cancel**

  Discards your selections and closes the Select Source Snapshot Copy dialog box.

Reverse resync in Active IQ Unified Manager

When you have a protection relationship that is broken because the source volume is disabled and the destination is made a read/write volume, reverse resynchronization enables you to reverse the direction of the relationship so that the destination becomes the new source and the source becomes the new destination.

When a disaster disables the source volume in your protection relationship, you can use the destination volume to serve data by converting it to read/write, while you repair or replace the source, update the source, and reestablish the relationship. When you perform a reverse resync operation, data on the source that is newer than the data on the common Snapshot copy is deleted.

Before reverse resync

Displays the source and destination of a relationship before a reverse resync operation.

- **Source Volume**

  The name and location of the source volume before a reverse resync operation.

- **Destination Volume**

  The name and location of the destination volume before a reverse resync operation.

After reverse resync

Displays what the source and destination of a relationship is after a reserve resync operation.

- **Source Volume**

  The name and location of the source volume after a reverse resync operation.

- **Destination Volume**

  The name and location of the destination volume after a reverse resync operation.

Command buttons

The command buttons enable you to perform the following actions:

- **Submit**

  Begins the reverse resynchronization process.

- **Cancel**

  Closes the Reverse Resync dialog box without initiating a reverse resync operation.

Display the Relationship: All relationships view in Active IQ Unified Manager

The Relationship: All Relationships view displays information about protection relationships on the storage system.

By default, when you access the Relationships page, the report that is displayed includes the top-level protection relationships for both volumes and storage VMs. The controls along the top of the page enable you to select a particular view, perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a .csv, .pdf, or .xlsx file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis. By default, when you select the

Relationships menu, the report displayed includes protection relationships for both volumes and storage VMs in your datacenter. You can use the **Filter** option to view only selected storage systems like only volumes or only storage VMs. The same report is displayed in the Storage page and only for the selected storage entity. If you want to view either volume or storage VM relationships, you can access either the **Storage** > **Volumes** > **Relationship: All Relationships** page or access **Protection** > **Relationships** > **Relationship: All Relationships**, and use the **Relationship Object Type** option in the **Filter** to filter out only volumes or storage VMs data.

The Relationships page that lists all the protection relationships has the link **View in System Manager** for the Destination cluster that allows you to view the same objects in ONTAP System Manager.

- **Status**

  Displays the current status of the protection relationship.

  The status can be one of Error ( ), Warning ( ), or OK ( ).

- **Source Storage VM**

  Displays the name of the source SVM. You can view more details about the source SVM by clicking the SVM name.

  When a SVM exists on the cluster but has not yet been added to the Unified Manager inventory, or that the SVM was created after the cluster's last refresh, this field will be empty. You must ensure that the SVM exists, or perform a rediscovery on the cluster to refresh the list of resources.

- **Source**

  Displays either the source volume or source storage VM being protected based on your selection. You can view more details about the source volume or storage VM by clicking the volume or storage VM name.

  If the message `Resource-key not discovered` is displayed, this might indicate that the volume exists on the cluster but has not yet been added to the Unified Manager inventory, or that the volume was created after the cluster's last refresh. You must ensure that the volume exists, or perform a rediscovery on the cluster to refresh the list of resources.

- **Destination Storage VM**

  Displays the name of the destination SVM. You can view more details about the destination SVM by clicking the SVM name.

- **Destination**

  Displays the name of the destination volume or storage VM based on your selection. You can view more details about the destination volume or storage VM by clicking the respective object name.

- **Relationship Object Type**

  Displays the type of object used in the relationship, such as storage VM, volume, and Consistency Group. For objects in a Consistency Relationship, the relationship source and destinations display the Consistency Group, and clicking them takes you to the LUNs page to view the relationship.

- **Policy**

  Displays the name of the protection policy for SnapMirror relationship. You can click the policy name to view details associated with that policy, including the following information:

- Transfer Priority

  Specifies the priority at which a transfer runs for asynchronous operations. The transfer priority is Normal or Low. Normal priority transfers are scheduled before low priority transfers. The default is Normal.

- Ignore Access Time

  Applies only to SnapVault relationships. This specifies whether incremental transfers ignore files which have only their access time changed. The values are either True or False. The default is False.

- When Relationship is Out of Sync

  Specifies the action ONTAP performs when a synchronous relationship is not able to be synchronized. StrictSync relationships will restrict access to the primary volume if there is a failure to synchronize with the secondary volume. Sync relationships do not restrict access to the primary if there is a failure to synchronize with the secondary.

- Tries Limit

  Specifies the maximum number of times to attempt each manual or scheduled transfer for a SnapMirror relationship. The default is 8.

- Comments

  Provides a text field for comments for specific to the selected policy.

- SnapMirror Label

  Specifies the SnapMirror label for the first schedule associated with the Snapshot copy policy. The SnapMirror label is used by the SnapVault subsystem when you back up Snapshot copies to a SnapVault destination.

- Retention Setting

  Specifies how long backups are kept, based on the time or the number of backups.

- Actual Snapshot Copies

  Specifies the number of Snapshot copies on this volume that match the specified label.

- Preserve Snapshot Copies

  Specifies the number of SnapVault Snapshot copies that are not deleted automatically even if the maximum limit for the policy is reached. The values are either True or False. The default is False.

- Retention Warning Threshold

  Specifies the Snapshot copy limit at which a warning is sent to indicate that the maximum retention limit is nearly reached.

- **Lag Duration**

  Displays the amount of time that the data on the mirror lags behind the source.

  The lag duration should be close to, or equal to, 0 seconds for StrictSync relationships.

- **Lag Status**

  Displays the lag status for managed relationships, and for unmanaged relationships that have a schedule associated with that relationship. Lag status can be:

  - Error

    The lag duration is greater than or equal to the lag error threshold.

  - Warning

    The lag duration is greater than or equal to the lag warning threshold.

  - OK

    The lag duration is within normal limits.

  - Not Applicable

    The lag status is not applicable for synchronous relationships because a schedule cannot be configured.

- **Last Successful Update**

  Displays the time of the last successful SnapMirror or SnapVault operation.

  The last successful update is not applicable for synchronous relationships.

- **Constituent Relationships**

  Displays whether there are any volumes in the selected object.

- **Relationship Type**

  Displays the relationship type used to replicate a volume. Relationship types include:

  - Asynchronous Mirror
  - Asynchronous Vault
  - Asynchronous MirrorVault
  - StrictSync
  - Sync

- **Transfer Status**

  Displays the transfer status for the protection relationship. The transfer status can be one of the following:

  - Aborting

    SnapMirror transfers are enabled; however, a transfer abort operation that might include removal of the checkpoint is in progress.

  - Checking

    The destination volume is undergoing a diagnostic check and no transfer is in progress.

- Finalizing

  SnapMirror transfers are enabled. The volume is currently in the post-transfer phase for incremental SnapVault transfers.

- Idle

  Transfers are enabled and no transfer is in progress.

- In-Sync

  The data in the two volumes in the synchronous relationship are synchronized.

- Out-of-Sync

  The data in the destination volume is not synchronized with the source volume.

- Preparing

  SnapMirror transfers are enabled. The volume is currently in the pre-transfer phase for incremental SnapVault transfers.

- Queued

  SnapMirror transfers are enabled. No transfers are in progress.

- Quiesced

  SnapMirror transfers are disabled. No transfer is in progress.

- Quiescing

  A SnapMirror transfer is in progress. Additional transfers are disabled.

- Transferring

  SnapMirror transfers are enabled and a transfer is in progress.

- Transitioning

  The asynchronous transfer of data from the source to the destination volume is complete, and the transition to synchronous operation has started.

- Waiting

  A SnapMirror transfer has been initiated, but some associated tasks are waiting to be queued.

- **Last Transfer Duration**

  Displays the time taken for the last data transfer to complete.

  The transfer duration is not applicable for StrictSync relationships because the transfer should be simultaneous.

- **Last Transfer Size**

Displays the size, in bytes, of the last data transfer.

The transfer size is not applicable for StrictSync relationships.

- **Mediators**

  Displays the mediator status.

  - Not Applicable

    If the cluster does not support SnapMirror active sync.

  - Not Configured

    If it is not configured, or if it is configured but only the destination cluster is added and the source cluster is not added in Unified Manager.

  - Mediator IP Address

    If it is configured, and both source and destination clusters are added in Unified Manager.

- **State**

  Displays the state of the SnapMirror or SnapVault relationship. The state can be Uninitialized, SnapMirrored, or Broken-Off. If a source volume is selected, the relationship state is not applicable and is not displayed.

- **Relationship Health**

  Displays the relationship heath of the cluster.

- **Unhealthy Reason**

  The reason the relationship is in an unhealthy state.

- **Transfer Priority**

  Displays the priority at which a transfer runs. The transfer priority is Normal or Low. Normal priority transfers are scheduled before low priority transfers.

  The transfer priority is not applicable for synchronous relationships because all transfers are treated with the same priority.

- **Schedule**

  Displays the name of the protection schedule assigned to the relationship.

  The schedule is not applicable for synchronous relationships.

- **Version Flexible Replication**

  Displays either Yes, Yes with backup option, or None.

- **Source Cluster**

  Displays the FQDN, short name, or IP address of the source cluster for the SnapMirror relationship.

- **Source Cluster FQDN**

  Displays the name of the source cluster for the SnapMirror relationship.

- **Source Node**

  Displays the name of the source node name link for the SnapMirror relationship of a volume and displays the SnapMirror relationship node count link when the object is a Storage VM or Consistency Group.

In the custom view, when you click the node name link, you can view and extend protection for storage objects on which the volumes of those Consistency Groups belong to a SnapMirror active sync relationship.

When you click the node count link, it takes you to the node page with respective nodes associated with that relationship. When the node count is 0, there is no value displayed as there are no nodes associated with the relationship.

- **Destination Node**

  Displays the name of the destination node name link for the SnapMirror relationship of a volume and displays the SnapMirror relationship node count link when the object is a Storage VM or Consistency Group.

  When you click the node count link, it takes you to the node page with respective nodes associated with that relationship. When the node count is 0, there is no value displayed as there are no nodes associated with the relationship.

- **Destination Cluster**

  Displays the name of the destination cluster for the SnapMirror relationship.

- **Destination Cluster FQDN**

  Displays the FQDN, short name, or IP address of the destination cluster for the SnapMirror relationship.

- **Protected By**

  Displays the different relationships. In this column, you can view volume and consistency group relationships for clusters and storage virtual machines order, including:

  - SnapMirror
  - Storage VM DR
  - SnapMirror, Storage VM DR
  - Consistency Group
  - SnapMirror, Consistency Group.

Related information

- For information about **Relationship: MetroCluster** view, see Monitoring MetroCluster configurations.
- For information about **Relationship: Last 1 month Transfer Status** view, see Relationship: Last 1 month Transfer Status view.
- For information about **Relationship: All Relationships** view, see Relationship: Last 1 month Transfer Rate view.

Display the Last 1 month Transfer Status view in Active IQ Unified Manager

The Relationship: Last 1 month Transfer Status view enables you to analyze the transfer trends over a period of time for volumes and Storage VMs in asynchronous relationships. This page also displays whether the transfer was a success or a failure.

The controls along the top of the page enable you to perform searches to locate specific objects, create, and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a `.csv`, `.pdf`, or `.xlsx` file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis. You can use the **Filter** option to view only selected storage systems like only volumes or only Storage VMs. The same report is displayed in the Storage page and only for the selected storage entity. For example, if you want to view volume relationships you can access either the Relationship: Last 1 Month Transfer Status report for the Storage VMs either from the **Storage** > **Storage VMs** > **Relationship: Last 1 Month Transfer Status** menu or from **Protection** > **Relationships** > **Relationship: Last 1 Month Transfer Status** menu, and use the **Filter** to only view data for volumes.

- **Source Volume**

  Displays the source volume name.

- **Destination Volume**

  Displays the destination volume name.

- **Operation Type**

  Displays the type of volume transfer.

- **Operation Result**

  Displays whether volume transfer was successful.

- **Transfer Start Time**

  Displays the volume transfer start time.

- **Transfer End Time**

  Displays the volume transfer end time.

- **Transfer Duration**

  Displays the time taken (in hours) to complete the volume transfer.

- **Transfer Size**

  Displays the size (in MB) of the transferred volume.

- **Source SVM**

  Displays the storage virtual machine (SVM) name.

- **Source Cluster**

  Displays the source cluster name.

- **Destination SVM**

  Displays the destination SVM name.

- **Destination Cluster**

  Displays the destination cluster name.

Related information

- For information about **Relationship: All Relationships** view, see Relationship: All Relationships view.
- For information about **Relationship:MetroCluster** view, see Monitoring MetroCluster configurations.
- For information about **Relationship: All Relationships** view, see Relationship: Last 1 month Transfer Rate view.

Display the Relationship: Last 1 month Transfer Rate view in Active IQ Unified Manager

The Relationship: Last 1 month Transfer Rate view enables you to analyze the amount of data volume that is transferred on a day-to-day basis for volumes in asynchronous relationships. This page also provides details about daily transfers and the time required to complete the transfer operation for volumes and Storage VMs.

The controls along the top of the page enable you to perform searches to locate specific objects, create and apply filters to narrow the list of displayed data, add/remove/reorder columns on the page, and export the data on the page to a .csv, .pdf, or .xlsx file. After you have customized the page, you can save the results as a custom view and then schedule a report of this data to be generated and emailed on a regular basis. For example, if you want to view volume relationships, you can access either the **Storage** > **Volumes** > **Relationship: Last 1 Month Transfer Rate** menu or access **Protection** > **Relationships** > **Relationships:Last 1 Month Transfer Rate** menu, and use the **Filter** to only view data for volumes.

- **Total Transfer Size**

  Displays the total size of the volume transfer in gigabytes.

- **Day**

  Displays the day on which the volume transfer was initiated.

- **End Time**

  Displays the volume transfer end time with date.

Related information

- For information about **Relationship:MetroCluster** view, see Monitoring MetroCluster configurations.
- For information about **Relationship: Last 1 month Transfer Status** view, see Relationship: Last 1 month Transfer Status view.

- For information about **Relationship: All Relationships** view, see Relationship: Last 1 month Transfer Rate view

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