NetApp

volume rebalance commands

ONTAP 9.14.1 commands

NetApp
February 12, 2024

Table of Contents

volume rebalance commands

volume rebalance modify

Modify the configuration for volume capacity rebalancing operations.

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `volume rebalance modify` command modifies the configuration for volume capacity rebalancing operations on a FlexGroup volume in the specified Vserver. When a new capacity rebalancing operation is started on a FlexGroup volume, it will use the current configuration values. Once the operation is started, any changes to the configuration will not affect the currently running capacity rebalancing operation. Only future capacity rebalancing operations will use the new configuration values.

The `volume rebalance modify` command is only supported on FlexGroup volumes.

Parameters

`-vserver <vserver name>` - Vserver Name

Identifies the Vserver that contains the FlexGroup volume whose capacity rebalancing configuration will be modified.

`-volume <volume name>` - Volume Name

Identifies the FlexGroup volume whose capacity rebalancing configuration will be modified.

`[-max-runtime <time_interval>]` - Maximum Runtime

Specifies the maximum time a capacity rebalancing operation will run for.

`[-max-threshold <percent>]` - Maximum Imbalance Threshold per Constituent

Specifies the maximum imbalance percentage for constituents. When a constituent's imbalance percentage is larger than this value, files will be moved from the constituent. The default value is 20%.

`[-min-threshold <percent>]` - Minimum Imbalance Threshold per Constituent

Specifies the minimum imbalance percentage for constituents. When a constituent's imbalance percentage is smaller than this value, files will not be moved from the constituent. The default value is 5%.

`[-max-file-moves <integer>]` - Maximum Concurrent File Moves per Constituent

Specifies the maximum number of concurrent file moves in a volume capacity rebalancing operation on a constituent of the FlexGroup volume. The default value is 25.

`[-min-file-size {<integer>[KB|MB|GB|TB|PB]}]` - Minimum File Size

Specifies the minimum file size to consider for a volume capacity rebalancing operation. The value must be a multiple of 4KB. The default value is 100MB. Setting the minimum file size to less than the default value leads to more files being moved. Moved files use granular data, which might impact read/write I/O performance.

`[-exclude-snapshots {true|false}]` - Exclude Files Stuck in Snapshot Copies

Specifies whether files stuck in snapshots should be excluded in a volume capacity rebalancing operation. The default value is true.

`[-start-time <Date>]` - Scheduled start time

Specifies the scheduled start time of the volume capacity rebalancing operation. The value must be a time later than 'now'.

Examples

In this example, the volume capacity rebalancing configuration is modified for the FlexGroup volume "fg1" in vserver "vs0" with the maximum threshold being 30%, the minimum threshold being 10%, the maximum file moves being 35, and the minimum file size being 2KB.

```
cluster::volume rebalance*> modify -vserver vs0 -volume fg1 -max-threshold
30 -min-threshold 10 -max-file-moves 35 -min-file-size 2KB
```

In this example, a previously scheduled volume capacity rebalancing is rescheduled for a different time.

```
cluster::volume rebalance*> modify -vserver vs0 -volume fg1 -start-time
12/30/2022 22:59:59
```

volume rebalance show

Display a list of volume capacity rebalancing operations on FlexGroup volumes

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `volume rebalance show` command displays information about volume capacity rebalancing operations on FlexGroup volumes.

The `volume rebalance show` command is only supported on FlexGroup volumes and constituents. The command displays rebalancing information for volumes. The command output depends on the parameter or parameters specified with the command. If no parameters are specified, the command displays the following information about all volumes:

- Vserver name
- Volume name
- Rebalancing state
- Total size
- Used size for calculating imbalance
- Size used by Snapshot copies
- Target used size

- Imbalance size

- Imbalance percent

To display detailed rebalancing information about each FlexGroup volume or constituent, run the command with the `-instance` parameter. The detailed view provides the following information for FlexGroup volumes:

- Vserver name

- Volume name

- Is constituent

- Rebalance state

- Total size

- Used size for calculating imbalance

- Size used by Snapshot copies

- Imbalance size

- Imbalance percentage

- Maximum constituent imbalance percentage

- Rebalance start time

- Rebalance stop time

- Rebalance runtime

- Rebalance maximum runtime

- Maximum imbalance threshold per constituent

- Minimum imbalance threshold per constituent

- Maximum files moved per constituent

- Minimum file size

- Exclude files stuck in snapshot copies

- Rebalance notice messages

The detailed view provides the following information for FlexGroup constituents:

- Vserver name

- Volume name

- Is constituent

- Rebalance state

- Total size

- Used size for calculating imbalance

- Size used by Snapshot copies

- Constituent target used size

- Imbalance size

- Imbalance percentage

- Moved data size

- Rebalance start time

- Rebalance stop time

- Rebalance runtime

- Rebalance maximum runtime

- Rebalance maximum runtime

- Maximum imbalance threshold per constituent

- Minimum imbalance threshold per constituent

- Maximum files moved per constituent

- Minimum file size

- Exclude files stuck in snapshot copies

You can specify parameters from the above list to display information. For example, to display information only about currently running rebalancing operations, run the command with the `-state rebalancing` parameter

Parameters

{ [-fields <fieldname>,…]

If you specify the `-fields <fieldname>, …` parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

| [-config]

If this parameter is specified, the command displays the following information:

- max-runtime

- max-threshold

- min-threshold

- max-file-moves

- min-file-size

- exclude-snapshots

| [-time]

If this parameter is specified, the command displays the following information:

- start-time

- runtime

- max-runtime

| [-instance] }

If this parameter is specified, the command displays the additional detailed information described above.

[-vserver <vserver name>] - Vserver Name

Selects information about volume capacity rebalancing operations on FlexGroup volumes in the specified Vserver.

`[-volume <volume name>]` - Volume Name

Selects information about volume capacity rebalancing operations on the specified FlexGroup volume.

`[-is-constituent {true|false}]` - Is Constituent

If specified, the command displays information about volume capacity rebalancing operations on constituents.

`[-state {idle|starting|rebalancing|rebalancing-source|rebalancing-dest|scanning|stopping|paused|not-running|unknown|scheduled}]` - Rebalance State

Selects information about volume capacity rebalancing operations with the specified state. While a FlexGroup volume is rebalancing, every constituent will have a rebalancing engine that can either be scanning the filesystem for space usage and files to move, actively moving files or temporarily doing neither. If one or more constituents has a state of *rebalancing-source* or *rebalancing-dest* , then files are being moved to rebalance the FlexGroup. If no files are being moved, more information about what the rebalancing engine is doing for each constituent is available using the (privilege: advanced) `volume rebalance show -instance` command. The following values apply to FlexGroup volumes.

- *not-running* - Capacity rebalancing is not running on the volume. This will only change when the user explicitly starts rebalancing.

- *idle* - Capacity rebalancing is running, however, no active scanning or file movement is currently happening.

- *starting* - The capacity rebalancing operation is starting on the volume.

- *rebalancing* - Volume capacity rebalancing is running on the volume.

- *paused* - The capacity rebalancing operation is paused on the volume.

- *stopping* - The capacity rebalancing operation is stopping on the volume.

- *unknown* - The system was unable to determine the rebalancing state for the volume.

`[-notices <text>,…]` - Rebalance Notice Messages

Selects information about volume capacity rebalancing operations with the specified notice messages.

`[-total {<integer>[KB|MB|GB|TB|PB]}]` - Total Size

Selects information about volume capacity rebalancing operations with the specified total size.

`[-used-for-imbalance {<integer>[KB|MB|GB|TB|PB]}]` - Used Size for Calculating Imbalance

Selects information about volume capacity rebalancing operations with the specified used size for calculating imbalance. This is calculated by subtracting the size used by Snapshot copies, the size of files pending deletion and the size used by filesystem metadata from the volume's used size.

`[-size-used-by-snapshots {<integer>[KB|MB|GB|TB|PB]}]` - Volume Size Used by Snapshot Copies

Selects information about volume capacity rebalancing operations with the specified volume size used by Snapshot copies.

`[-target-used {<integer>[KB|MB|GB|TB|PB]}]` - Constituent Target Used Size

Selects information about volume capacity rebalancing operations with the specified target used size on a constituent. Represents the average used size among all constituents.

`[-imbalance-size {<integer>[KB|MB|GB|TB|PB]}]` - Imbalance Size

   Selects information about volume capacity rebalancing operations with the specified imbalance size.

`[-imbalance-percent <percent_no_limit_signed>]` - Imbalance Percentage

   Selects information about volume capacity rebalancing operations with the specified imbalance percentage.

`[-data-moved {<integer>[KB|MB|GB|TB|PB]}]` - Moved Data Size

   Selects information about volume capacity rebalancing operations with the specified moved data size.

`[-max-constituent-imbalance-percent <percent_no_limit>]` - Maximum Constituent Imbalance Percentage

   Selects information about volume capacity rebalancing operations with the specified maximum constituent imbalance percentage. Represents the imbalance percentage of the constituent most out of balance.

`[-start-time <Date>]` - Rebalance Start Time

   Selects information about volume capacity rebalancing operations with the specified start time.

`[-stop-time <Date>]` - Rebalance Stop Time

   Selects information about volume capacity rebalancing operations with the specified stop time.

`[-runtime <time_interval>]` - Rebalance Runtime

   Selects information about volume capacity rebalancing operations with the specified run time.

`[-max-runtime <time_interval>]` - Rebalance Maximum Runtime

   Selects information about volume capacity rebalancing operations with the specified maximum run time. Represents the maximum amount of time a rebalancing operation can run for before stopping.

`[-max-threshold <percent>]` - Maximum Imbalance Threshold per Constituent

   Selects information about volume capacity rebalancing operations with the specified maximum threshold. Represents the acceptable imbalance threshold beyond which rebalancing should be started on that constituent in the FlexGroup volume.

`[-min-threshold <percent>]` - Minimum Imbalance Threshold per Constituent

   Selects information about volume capacity rebalancing operations with the specified minimum threshold. Represents the minimum imbalance threshold at which rebalancing is stopped for the constituent in the FlexGroup volume.

`[-max-file-moves <integer>]` - Maximum Concurrent File Moves per Constituent

   Selects information about volume capacity rebalancing operations with the specified maximum concurrent file moves. Represents the maximum number of concurrent file moves allowed per constituent.

`[-min-file-size {<integer>[KB|MB|GB|TB|PB]}]` - Minimum File Size

   Selects information about volume capacity rebalancing operations with the specified minimum file size. Represents the minimum size of file to be considered for rebalancing a constituent in a FlexGroup volume.

`[-exclude-snapshots {true|false}]` - Exclude Files Stuck in Snapshot Copies

   Selects information about volume capacity rebalancing operations with the specified excluding snapshot flag. Represents whether or not files that are in Snapshot copies as candidates for rebalancing are ignored.

Examples

The following example displays rebalancing information about all FlexGroup volumes on Vserver "vs0":

```
cluster::> volume rebalance show -vserver vs0
Vserver: vs0
                                                      Projected
                                                            AFS    Target
Imbalance
        Volume        State                   Total      Used     Used
Size      %
        ------------  ----------------- --------- --------- ---------
--------- -----
        fg1           rebalancing           400MB   117.7MB        -
176KB    0%
        fg2           not-running           800MB   115.0MB        -
8KB     0%
        2 entries were displayed.
```

The following example displays rebalancing information about all FlexGroup constituents on Vserver "vs0":

```
cluster::> volume rebalance show -vserver vs0 -is-constituent True
Vserver: vs0
                                                      Projected
                                                            AFS    Target
Imbalance
        Volume        State                   Total      Used     Used
Size       %
        ------------  ----------------- --------- --------- ---------
--------- -----
        fg1__0001     idle                  200MB   59.03MB   58.86MB
176KB     0%
        fg1__0002     idle                  200MB   58.69MB   58.86MB
-172KB     0%
        fg2__0001     not-running           200MB   28.77MB   28.76MB
4KB      0%
        fg2__0002     not-running           200MB   28.76MB   28.76MB
-4KB     0%
        fg2__0003     not-running           200MB   28.77MB   28.76MB
4KB      0%
        fg2__0004     not-running           200MB   28.76MB   28.76MB
-4KB     0%
        6 entries were displayed.
```

The following example displays detailed rebalancing information about a specific FlexGroup volume "fg1" on

Vserver "vs0":

```
cluster::> volume rebalance show -vserver vs0 -volume fg1 -instance
Vserver Name: vs0
                                          Volume Name: fg1
                                       Is Constituent: false
                                      Rebalance State: not-running
                            Rebalance Notice Messages: -
                                           Total Size: 400MB
                              Projected AFS Used Size: 117.7MB
                 Volume Size Used by Snapshot Copies: 10.57MB
                        Constituent Target Used Size: -
                                       Imbalance Size: 176KB
                                 Imbalance Percentage: 0%
                                      Moved Data Size: -
            Maximum Constituent Imbalance Percentage: 0%
                                 Rebalance Start Time: Fri Mar 25 17:26:09
 2022
                                  Rebalance Stop Time: Fri Mar 25 17:29:29
 2022
                                    Rebalance Runtime: 0h3m20s
                            Rebalance Maximum Runtime: 0h3m20s
          Maximum Imbalance Threshold per Constituent: 20%
          Minimum Imbalance Threshold per Constituent: 5%
        Maximum Concurrent File Moves per Constituent: 25
                                     Minimum File Size: 4KB
               Exclude Files Stuck in Snapshot Copies: true
```

The following example displays detailed rebalancing information about a specific FlexGroup constituent
"fg1__0001" on Vserver "vs0":

```
cluster::> volume rebalance show -vserver vs0 -volume fg1__0001 -instance
-is-constituent True
Vserver Name: vs0
                                      Volume Name: fg1__0001
                                    Is Constituent: true
                                   Rebalance State: not-running
                          Rebalance Notice Messages: -
                                        Total Size: 200MB
                           Projected AFS Used Size: 59.04MB
               Volume Size Used by Snapshot Copies: 5.46MB
                       Constituent Target Used Size: 58.86MB
                                    Imbalance Size: 176KB
                              Imbalance Percentage: 0%
                                   Moved Data Size: 0B
           Maximum Constituent Imbalance Percentage: -
                               Rebalance Start Time: Fri Mar 25 17:26:09
 2022
                                Rebalance Stop Time: Fri Mar 25 17:29:29
 2022
                                  Rebalance Runtime: 0h3m20s
                          Rebalance Maximum Runtime: 0h3m20s
        Maximum Imbalance Threshold per Constituent: 20%
        Minimum Imbalance Threshold per Constituent: 5%
      Maximum Concurrent File Moves per Constituent: 25
                                   Minimum File Size: 4KB
                Exclude Files Stuck in Snapshot Copies: true
```

volume rebalance start

Start a volume capacity rebalancing operation on a FlexGroup volume

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `volume rebalance start` command starts a volume capacity rebalancing operation on a FlexGroup volume in the specified Vserver. Only one volume capacity rebalancing operation is supported per FlexGroup volume at a time. Running capacity rebalancing operations on multiple FlexGroup volumes at the same time is supported.

The `volume rebalance start` command is only supported on FlexGroup volumes.

Parameters

`-vserver <vserver name>` - Vserver Name

Identifies the Vserver that contains the FlexGroup volume whose capacity will be rebalanced.

`-volume <volume name>` - Volume Name

Identifies the FlexGroup volume whose capacity will be rebalanced.

`[-max-runtime <time_interval>]` - Maximum Runtime

Specifies the maximum time a capacity rebalancing operation will run for. The default value is 6 hours.

`[-max-threshold <percent>]` - Maximum Imbalance Threshold per Constituent

Specifies the maximum imbalance percentage for constituents. When a constituent's imbalance percentage is larger than this value, files will be moved from the constituent. The default value is 20%.

`[-min-threshold <percent>]` - Minimum Imbalance Threshold per Constituent

Specifies the minimum imbalance percentage for constituents. When a constituent's imbalance percentage is smaller than this value, files will not be moved from the constituent. The default value is 5%.

`[-max-file-moves <integer>]` - Maximum Concurrent File Moves per Constituent

Specifies the maximum number of concurrent file moves in a volume capacity rebalancing operation on a constituent of the FlexGroup volume. The default value is 25.

`[-min-file-size {<integer>[KB|MB|GB|TB|PB]}]` - Minimum File Size

Specifies the minimum file size to consider for a volume capacity rebalancing operation. The value must be a multiple of 4KB. The default value is 100MB. Setting the minimum file size to less than the default value leads to more files being moved. Moved files use granular data, which might impact read/write I/O performance.

`[-exclude-snapshots {true|false}]` - Exclude Files Stuck in Snapshot Copies

Specifies whether files stuck in snapshots should be excluded in a volume capacity rebalancing operation. The default value is true.

`[-start-time <Date>]` - Scheduled start time, e.g. 12/31/2022 23:59:59

Specifies the scheduled start time of the volume capacity rebalancing operation. The value must be a time later than 'now'.

Examples

In this example, a volume capacity rebalancing operation is started for the FlexGroup volume "fg1" in vserver "vs0" with the maximum run time being 72000 seconds or 20 hours starting at 23:59:59 on 12/31/2022.

```
cluster::volume rebalance*> start -vserver vs0 -volume fg1 -max-runtime
72000 -start-time 12/31/2022 23:59:59
```

volume rebalance stop

Stop a volume capacity rebalancing operation on a FlexGroup volume

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `volume rebalance stop` command stops a volume capacity rebalancing operation on a FlexGroup volume in the specified Vserver.

The `volume rebalance stop` command is only supported on FlexGroup volumes.

Parameters

`-vserver <vserver name>` - Vserver Name

   Identifies the Vserver that contains the FlexGroup volume whose capacity rebalancing operation will be stopped.

`-volume <volume name>` - Volume Name

   Identifies the FlexGroup volume whose capacity rebalancing operation will be stopped.

Examples

In this example, a volume capacity rebalancing operation is stopped for the FlexGroup volume "fg1" in vserver "vs0".

```
cluster::volume rebalance rebalance*> stop -vserver vs0 -volume fg1
```

volume rebalance file-move abort

Abort a file-move operation that is in progress

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move abort` command aborts a file-move operation that has been started and is in progress.

A file-move operation goes through different stages as part of the move operation. During the cutover stage of the file-move operation, the actual file is created at the destination FlexGroup constituent, after which the data blocks are transferred. Once the file is created at the destination FlexGroup constituent, the file is visible in the namespace of the FlexGroup volume. If the file-move operation has entered the cutover stage, it cannot be aborted.

The `volume rebalance file-move abort` command is only supported on FlexGroup volumes. For a given FlexGroup volume, there can be many file-move operations that are currently in progress for different sets of constituents. The parameters for this command provide a way to identify a particular file-move operation within a FlexGroup volume.

Parameters

`-vserver <vserver name>` - Vserver Name (privilege: advanced)

   Identifies the Vserver that contains the FlexGroup volume involved in the file-move operation.

`-volume <volume name>` - Volume Name (privilege: advanced)

Identifies the FlexGroup volume that is hosting the file being moved in the file-move operation.

`-path <text>` - Path (privilege: advanced)

Identifies the path to the file being moved within the FlexGroup volume.

`-destination-constituent <volume name>` - Destination Constituent Volume (privilege: advanced)

Identifies the destination constituent name of the FlexGroup volume where the file is being moved.

`[-operation-uuid <UUID>]` - Operation UUID (privilege: advanced)

If specified, this parameter identifies the UUID of the file-move operation. Use the volume rebalance file-move show command to obtain the UUID for a file-move operation.

Examples

The following example aborts a file-move operation for the file "/system/build/image.tgz" within the FlexGroup volume "bld_volume":

```
cluster1::*> volume rebalance file-move abort -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005

File-move operation cancelled.
```

The following example aborts the file-move operation in progress for the file "/system/build/image.tgz" within the FlexGroup "bld_volume". The UUID of the file-move operation is also provided:

```
cluster1::*> volume rebalance file-move abort -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005 -operation-uuid f8d780b4-32fc-4053-be5e-2f6edc0a652b

File-move operation cancelled.
```

The following example attempts to abort the file-move operation for the file "/system/build/image.tgz" within the FlexGroup volume "bld_volume". However, the file-move operation could not be aborted as it is past the cutover stage of the operation. A file-move operation can only be aborted if it has not entered the cutover stage:

```
cluster1::*> volume rebalance file-move abort -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005

Error: command failed: The file move abort operation failed. Reason:
Cannot
       destroy file operation. File move operation has completed the
cutover
       phase.
```

Related Links

- volume rebalance file-move show

volume rebalance file-move modify

Modify a file-move operation

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move modify` command modifies certain attributes of a file-move operation that is currently in progress. Specifically, the maximum throughput allowed on a particular file-move operation can be modified, and the data transfer of a file-move operation can be paused or resumed.

The `volume rebalance file-move modify` command is only supported on FlexGroup volumes. For a given FlexGroup volume, there can be many file-move operations that are currently in progress for different sets of constituents. The parameters for this command provide a way to identify a particular file-move operation within a FlexGroup volume.

Parameters

`-vserver <vserver name>` - Vserver Name (privilege: advanced)

Identifies the Vserver that contains the FlexGroup volume involved in the file-move operation.

`-volume <volume name>` - Volume Name (privilege: advanced)

Identifies the FlexGroup volume that is hosting the file being moved in the file-move operation.

`-path <text>` - Path (privilege: advanced)

Identifies the path to the file being moved within the FlexGroup volume. This parameter can be specified with the `-destination-constituent` parameter to identify a particular file-move operation within a FlexGroup volume.

`-destination-constituent <volume name>` - Destination Constituent Volume (privilege: advanced)

Identifies the destination constituent name of the FlexGroup volume where the file is being moved. This parameter can be specified with the `-path` parameter to identify a particular file-move operation within a FlexGroup volume.

[-operation-uuid <UUID>] - **Operation UUID (privilege: advanced)**

Identifies the UUID of the file-move operation. Use the volume rebalance file-move show command to obtain the UUID for a file-move operation. This parameter can be specified in addition to the `-path` and `-destination-constituent` parameters to identify a particular file-move operation if there are multiple ongoing operations involving the same path and destination constituent.

[-max-throughput {<integer>[KB|MB|GB|TB|PB]}] - **Maximum Scanner Speed (privilege: advanced)**

If specified, this parameter will modify the rate limit for the data transfer in bytes per second. A non-zero value less than 1 MB/s will be set to 1 MB/s. A non-zero value greater than 1 MB/s will be truncated to the nearest integral megabyte value. A value of "0" specifies that no range will be set for the data transfer. This value does not represent a throughput the system will guarantee, but a limit that cannot be exceeded.

[-scanner-paused {true|false}] - **Scanner Paused (privilege: advanced)**

If specified, the data transfer of the file-move operation will be paused or resumed. Using a value of *false* will pause the data transfer while using a value of *true* will resume the data transfer.

Examples

The following example modifies the maximum throughput of the ongoing file-move operation for the file "/system/build/image.tgz" within the FlexGroup volume "bld_volume". `-path` and `-destination-constituent` are used to identify the particular file-move operation:

```
cluster1::*> volume rebalance file-move modify -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005 -max-throughput 2MB
```

The following example pauses the data transfer of the ongoing file-move operation for the file "/system/build/image.tgz" within the FlexGroup volume "bld_volume". This stops any further data from being transferred from the source volume to the destination volume:

```
cluster1::*> volume rebalance file-move modify -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005 -scanner-paused true
```

The following example resumes the data transfer of a paused file-move operation for the file "/system/build/image.tgz" within the FlexGroup volume "bld_volume". `-path` and `-destination-constituent` are used to identify the particular file-move operation:

```
cluster1::*> volume rebalance file-move modify -vserver vs0 -volume
bld_volume -path /system/build/image.tgz -destination-constituent
bld_volume__0005 -scanner-paused false
```

Related Links

• volume rebalance file-move show

volume rebalance file-move show

Display a list of files being moved

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move show` command displays a list of files being moved between the FlexGroup Constituents.

The `volume rebalance file-move show` command is only supported on FlexGroup volumes. The command displays information about each ongoing file-move operation, as well as any file-move operations that have completed, failed or have been cancelled within the last two minutes. For all file-move operations matching the specified parameters, the command displays the following information:

- Vserver name
- Volume name
- File Path
- Source Constituent Volume
- Destination Constituent Volume
- Current status of the file-move operation ("Preparing", "Data-Transfer", "Paused", "Complete", "Failed" or "Terminated-Manual")
- Percentage of total data bytes transferred to the destination

To display detailed information about each file-move operation, run the command with the `-instance` parameter. The detailed view provides the following information:

- Vserver Name
- Volume Name
- Destination Constituent Volume
- Source Constituent Volume
- Destination Constituent Node
- Source Constituent Node
- Operation Status: Current status of the file-move operation ("Preparing", "Data-Transfer", "Paused", "Complete", "Failed" or "Terminated-Manual")
- Scanner Progress Percentage
- Operation UUID: UUID of the overall file-move operation
- Source Operation UUID: UUID used to identify the file-move operation on the source constituent
- File Path: Path of the file being moved
- Source Constituent Master Data Set ID
- Source Constituent Data Set ID
- Source File ID: ID of the inode on the source constituent
- Source Generation: Generation number of the inode on the source constituent

- Destination File ID: ID of the inode on the destination constituent

- Destination Data Set ID

- Destination Master Data Set ID

- Destination Generation: Generation number of the inode on the destination constituent

- Maximum Scanner Speed (per sec): Maximum throughput of the data scanner

- Scanner Paused: Displays information if the underlying data transfer scanner is paused

- Scanner Status: The current stage of the underlying data transfer scanner ("Preparing", "Allocation-Map", "Data", "Destroying", "Paused-Manual", "Paused-Error", "Complete", "Terminated-Manual" or "Destroyed")

- Scanner Progress: Number of bytes transferred

- Scanner Total: Total number of bytes to be transferred

- Data Scanner Priority: Priority of the data scanner assigned to the file-move operation (high or low)

- Elapsed Time

- Cutover Time: Time elapsed during the cutover stage of the file-move operation, in seconds

- Is Snapshot Fenced: Whether snapshots are fenced for the file-move operation

- Is Destination Ready: Whether the destination volume is ready for the file-move operation

- Last Failure Time

- Last Failure Reason

You can specify parameters from the above list to display information. For example, to display information only about paused operations, run the command with the `-status Paused` parameter.

Parameters

{ [-fields <fieldname>,…]

If you specify the `-fields <fieldname>`, … parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

| [-instance] }

If this parameter is specified, the command displays the additional detailed information described above.

[-vserver <vserver name>] - Vserver (privilege: advanced)

If this parameter and the `-volume` parameter are specified, the command displays the file-move operations on the specified volume. If this parameter is specified by itself, the command displays the file-move operations on all volumes on the specified Vserver.

[-volume <volume name>] - Volume Name (privilege: advanced)

If this parameter and the `-vserver` parameter are specified, the command displays the file-move operations on the specified volume. If this parameter is specified by itself, the command displays the file-move operations on all volumes matching the specified name.

[-destination-constituent <volume name>] - Destination Constituent Volume (privilege: advanced)

If this parameter is specified, the command displays only the file-move operations with the specified destination FlexGroup constituent name.

[-operation-uuid <UUID>] - Operation UUID (privilege: advanced)

If this parameter is specified, the command displays only the file-move operation with the specified operation UUID.

[-destination-node <nodename>] - Destination Constituent Node (privilege: advanced)

If this parameter is specified, the command displays only file-move operations for files being moved to the specified destination node.

[-destination-dsid <integer>] - Destination Constituent DSID (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified destination volume data set ID.

[-source-constituent <volume name>] - Source Constituent Volume (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified source FlexGroup constituent name.

[-source-operation-uuid <UUID>] - Source Operation UUID (privilege: advanced)

If this parameter is specified, the command displays only the file-move operation with the specified internal source job operation UUID.

[-source-node <nodename>] - Source Constituent Node (privilege: advanced)

If this parameter is specified, the command displays only file-move operations for files being moved from the specified source node.

[-source-dsid <integer>] - Source Constituent DSID (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified source volume data set ID.

[-status {Preparing|Data-Transfer|Paused|Complete|Failed|Manually-Terminated}] - Operation Status (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified status ("Preparing", "Data-Transfer", "Paused", "Complete", "Failed" or "Terminated-Manual").

[-scanner-percent <percent>] - Scanner Progress Percentage (privilege: advanced)

If this parameter is specified, the command displays only file-move operations that have transferred the specified percentage of total bytes.

[-last-failure-reason <text>] - Last Failure Reason (privilege: advanced)

If this parameter is specified, the command displays only file-move operations whose last failure reason matches the specified string.

[-path <text>] - File Path (privilege: advanced)

If this parameter is specified, the command displays only file-move operations for files that match the specified path.

[-destination-msid <integer>] - Destination Constituent MSID (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified destination volume master data set ID.

[-destination-fileid <integer>] - Destination Fileid (privilege: advanced)

If this parameter is specified, the command displays only file-move operations pertaining to files with the specified file ID on the destination constituent.

[-destination-generation <integer>] - Destination Generation (privilege: advanced)

If this parameter is specified, the command displays only file-move operations pertaining to files with the specified generation number on the destination constituent.

[-source-msid <integer>] - Source Constituent MSID (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified source volume master data set ID.

[-source-fileid <integer>] - Source Fileid (privilege: advanced)

If this parameter is specified, the command displays only file-move operations pertaining to files with the specified file ID on the source constituent.

[-source-generation <integer>] - Source Generation (privilege: advanced)

If this parameter is specified, the command displays only file-move operations pertaining to files with the specified generation number on the source constituent.

[-max-throughput {<integer>[KB|MB|GB|TB|PB]}] - Maximum Scanner Speed (per sec) (privilege: advanced)

If this parameter is specified, the command displays only file-move operations that use the specified value as the maximum scanner speed (in MB/s). This value does not represent a throughput the system will guarantee, but a limit that cannot be exceeded.

[-scanner-paused {true|false}] - Scanner Paused (privilege: advanced)

If this parameter is specified, the command displays only file-move operations that are paused (true) or unpaused (false).

[-scanner-status {Preparing|Allocation-Map|Data|Destroying|Paused-Manual|Paused-Error|Complete|Destroyed|Terminated-Manual}] - Scanner Status (privilege: advanced)

If this parameter is specified, the command displays only file-move operations in the specified scanner stage ("Preparing", "Allocation-Map", "Data", "Destroying", "Paused-Manual", "Paused-Error", "Complete", "Terminated-Manual" or "Destroyed")

[-scanner-progress {<integer>[KB|MB|GB|TB|PB]}] - Scanner Progress (privilege: advanced)

If this parameter is specified, the command displays only file-move operations that have transferred the specified number of bytes.

[-scanner-total {<integer>[KB|MB|GB|TB|PB]}] - Scanner Total (privilege: advanced)

If this parameter is specified, the command displays only file-move operations with the specified total transfer size in bytes.

[-data-scanner-priority {high|low}] - Data Scanner Priority (privilege: advanced)

If this parameter is specified, the command displays only the file-move operations that give the data scanner high priority (high) or low priority (low).

[-elapsed-time <time_interval>] - Elapsed Time (privilege: advanced)

If this parameter is specified, the command displays only file-move operations that have a matching

elapsed-time interval. Specify an `elapsed-time` range by using the ".." operator between two values. For example, the following command displays file-move operations with `elapsed-time` between 2 hours and 3 hours 30 minutes:

```
volume rebalance file-move show -elapsed-time 2h..3h30m
```

+

Specify a comparative `elapsed-time` value using the ">" and "<" operators. For example, the following command displays the file-move operations with an `elapsed-time` greater than 5 hours and 30 minutes:

```
volume rebalance file-move show -elapsed-time >5h30m
```

[-cutover-time <[<integer>d][<integer>h][<integer>m][<integer>s]>] - Cutover Time (privilege: advanced)

If this parameter is specified, the command displays only the file-move operations with the specified cutover time.

[-is-snapshot-fenced {true|false}] - Is Snapshot Fenced (privilege: advanced)

If this parameter is specified, the command displays only the file-move operations with snapshots fenced (true) or unfenced (false).

[-is-destination-ready {true|false}] - Is Destination Ready (privilege: advanced)

If this parameter is specified, the command displays only the file-move operations for which the destination volume is ready (true) or not ready (false).

[-last-failure-time <MM/DD/YYYY HH:MM:SS>] - Last Failure Time (privilege: advanced)

If this parameter is specified, the command displays file-move operations that have a matching `last-failure-time` value. Use the format: "MM/DD/YYYY HH:MM:SS". Specify a time range by using the ".." operator between two time statements. For example, the following command displays file-move operations with a `last-failure-time` value between "08/13/2014 05:55:00" and "08/13/2014 06:10:00":

```
volume rebalance file-move show -last-failure-time "08/13/2021
05:55:00".."08/13/2021 06:10:00"
```

+

Specify a comparative `last-failure-time` value using the ">" and "<" operators. For example, the following command displays file-move operations with a `last-failure-time` value after "8/27/2021 14:58:00":

```
volume rebalance file-move show -last-failure-time >"8/27/2021 14:58:00"
```

Examples

The following example displays information about all file-move operations on the Vserver named "vs1":

```
cluster1::volume rebalance file-move*> show -vserver vs1
Vserver: vs1
Volume: fg1
Path                            Source        Destination   Status
Progress
-------------------------- ------------- ------------- ---------------
---------
/d1/d2/foo                      fg1__0002     fg1__0003     Paused
0%
/d1/d2/bar                      fg1__0002     fg1__0004     Completed
100%

Vserver: vs1
Volume: bld_volume
Path                            Source        Destination   Status
Progress
-------------------------- ------------- ------------- ---------------
---------
/system/build/image.tgz    bld_volume__0001
                                          bld_volume__0005
                                                     Data-Transfer
50%
3 entries were displayed.
```

The following example displays detailed information about a specific file-move operation on Vserver vs0:

```
cluster1::volume rebalance file-move*> show -instance -vserver vs0 -volume
fg -path /test
  (volume rebalance file-move show)
Vserver Name: vs0
                  Volume Name: fg
 Destination Constituent Volume: fg__0001
                Operation UUID: 283a983e-c06a-42bc-8bd7-8830211cb2a9
   Destination Constituent Node: sti96-vsim-ucs539i
   Destination Constituent DSID: 1635
      Source Constituent Volume: fg__0004
         Source Operation UUID: 283a983e-c06a-42bc-8bd7-8830211cb2a9
       Source Constituent Node: sti96-vsim-ucs539j
       Source Constituent DSID: 1638
              Operation Status: Paused
    Scanner Progress Percentage: 0%
           Last Failure Reason: -
                     File Path: /test
   Destination Constituent MSID: 2154447497
           Destination Fileid: 97
        Destination Generation: 247243720
        Source Constituent MSID: 2154447500
                 Source Fileid: 504
             Source Generation: 214935427
Maximum Scanner Speed (per sec): 1MB
                Scanner Paused: true
                Scanner Status: Paused-Manual
              Scanner Progress: 0B
                 Scanner Total: 10MB
           Data Scanner Priority: low
                  Elapsed Time: 0h2m27s
                  Cutover Time: 0s
             Is Snapshot Fenced: false
           Is Destination Ready: true
             Last Failure Time: -
```

volume rebalance file-move start

Moves a file from one FlexGroup constituent to another

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move start` command initiates a retroactive file movement for a file residing in a FlexGroup volume in the given Vserver. You must provide the path to the file to be moved. Additional parameters may be used to control certain properties of the move operation. The parent directory's

mtime may be modified by this command which may impact analytics mtime histogram. This command only takes NFS filenames and only UTF-8 encoding is supported.

The `volume rebalance file-move start` command is only supported on FlexGroup volumes.

Parameters

`-vserver <vserver name>` **- Vserver Name (privilege: advanced)**

Identifies the Vserver that contains the FlexGroup volume involved in this operation.

`-volume <volume name>` **- Volume Name (privilege: advanced)**

Identifies the FlexGroup volume that is hosting the file being moved in this operation.

`-path <text>` **- Path (privilege: advanced)**

Path to the file being moved within this FlexGroup volume.

`[-destination-constituent <volume name>]` **- Destination Constituent Volume (privilege: advanced)**

Identifies the destination constituent name of the FlexGroup volume where the file is being moved to. The constituent must be a member of the same FlexGroup volume as the source constituent.

`[-max-throughput {<integer>[KB|MB|GB|TB|PB]}]` **- Maximum Scanner Speed (privilege: advanced)**

Specifies the range of the data transfer in bytes per second. A non-zero value less than 1 MB/s will be set to 1 MB/s. A non-zero value greater than 1 MB/s will be truncated to the nearest integral megabyte value. If unspecified, the default value is "0" which means no range will be set for the data transfer. This value does not represent a throughput the system will guarantee, but a limit that cannot be exceeded.

`[-scanner-paused {true|false}]` **- Scanner Paused (privilege: advanced)**

Specifies that the data scanner should not be started immediately when the move operations starts. If unspecified, the default value is "false". Use the volume rebalance file-move modify command to start the data scanner.

`[-force <true>]` **- Force (privilege: advanced)**

If this parameter is specified, the file move operation will break the existing lock state on the file and proceed. This may cause a disruption for some client applications.

`[-is-disruptive {true|false}]` **- Is Disruptive (privilege: advanced)**

Specifies whether the file move operation should be disruptive. The default value is "false".

Examples

In this example, a file-move operation is started for the file "/d1/d2/foo" within the FlexGroup volume "fg1" in vserver "vs0". The path is relative to the root directory of this FlexGroup volume, not the global namespace path of the file. In this example, the file is being moved to the destination constituent identified by the name "fg1__0003".

```
cluster::volume rebalance file-move*> start -vserver vs0 -volume fg1 -path
/d1/d2/foo -destination-constituent fg1__0003
File move started with operation-uuid f8d780b4-32fc-4053-be5e-2f6edc0a652b
```

Related Links

* volume rebalance file-move modify

volume rebalance file-move statistics reset

Reset statistics for file-move operations between FlexGroup constituents

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move statistics reset` command resets completed statistics for the file-move operations.

The `volume rebalance file-move statistics reset` command is only supported on FlexGroup volumes.

Parameters

-vserver <vserver name> - Vserver Name (privilege: advanced)

If this parameter and the `-volume` parameter are specified, the command resets statistics for the FlexGroup constituents on the specified volume. If this parameter is specified by itself, the command resets statistics for the FlexGroup constituents on all volumes on the specified Vserver.

-volume <volume name> - Volume Name (privilege: advanced)

If this parameter and the `-vserver` parameter are specified, the command resets statistics for the FlexGroup constituents on the specified volume. If this parameter is specified by itself, the command resets statistics for the FlexGroup constituents on all volumes matching the specified name.

Examples

The following example resets completed statistics for all FlexGroup constituents on the FlexGroup volume "bld_volume" in Vserver "vs0":

```
cluster1::*> volume rebalance file-move statistics show -vserver vs0
-volume bld_volume

Vserver: vs0
Volume: bld_volume
                                  Source                    Destination
Constituent                    Files        Bytes          Files
Bytes
```

```
------------------     ----------     ----------     -----------     -----------
bld_volume__0001
        In Progress:                     1            10GB                 0
0B
            Completed:                   5            100GB                0
0B
bld_volume__0002
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB
bld_volume__0003
        In Progress:                     1            10GB                 0
0B
            Completed:                   15           100GB                0
0B
bld_volume__0004
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB
bld_volume__0005
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB
bld_volume__0006
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB
bld_volume__0007
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB
bld_volume__0008
        In Progress:                     0            0B                   1
10GB
            Completed:                   0            0B                   10
150MB

cluster1::*> volume rebalance file-move statistics reset -vserver vs0
-volume bld_volume
(  volume rebalance file-move statistics reset)
```

```
cluster1::*> volume rebalance file-move statistics show -vserver vs0
-volume bld_volume

Vserver: vs0
Volume: bld_volume
                                    Source                      Destination
Constituent                  Files        Bytes         Files
Bytes
------------------       -----------  -----------   -----------
-----------
bld_volume__0001
      In Progress:                1         10GB             0
0B
         Completed:               0           0B             0
0B
bld_volume__0002
      In Progress:                0           0B             1
10GB
         Completed:               0           0B             0
0B
bld_volume__0003
      In Progress:                1         10GB             0
0B
         Completed:               0           0B             0
0B
bld_volume__0004
      In Progress:                0           0B             1
10GB
         Completed:               0           0B             0
0B
bld_volume__0005
      In Progress:                0           0B             1
10GB
         Completed:               0           0B             0
0B
bld_volume__0006
      In Progress:                0           0B             1
10GB
         Completed:               0           0B             0
0B
bld_volume__0007
      In Progress:                0           0B             1
10GB
         Completed:               0           0B             0
0B
```

```
bld_volume__0008
      In Progress:              0            0B              1
10GB
      Completed:               0            0B              0
0B
```

volume rebalance file-move statistics show

Display statistics for file-move operations across FlexGroup Constituents

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

The `volume rebalance file-move statistics show` command displays common statistics for the file-move operations at a FlexGroup constituent level.

The `volume rebalance file-move statistics show` command is only supported on FlexGroup volumes. For all FlexGroup constituents matching the specified parameters, the command displays the following information:

- Vserver name
- Volume name
- Constituent name
- Source Files In-Progress: Number of files currently being moved from the FlexGroup constituent
- Source Files Completed: Number of files already moved from the FlexGroup constituent
- Source Bytes In-Progress: Total number of bytes of all the files currently being moved from the FlexGroup constituent
- Source Bytes Completed: Total number of bytes of all the files already moved from the FlexGroup constituent
- Destination Files In-Progress: Number of files currently being moved to the FlexGroup constituent
- Destination Files Completed: Number of files already moved to the FlexGroup constituent
- Destination Bytes In-Progress: Total number of bytes of all the files currently being moved to the FlexGroup constituent
- Destination Bytes Completed: Total number of bytes of all the files already moved to the FlexGroup constituent

You can specify parameters from the above list to display information. For example, to display statistics only for FlexGroup constituents with more than one file currently being moved from them, run the command with the `-source-files-inprogress >1` parameter.

Parameters

{ [-fields <fieldname>,…]

If you specify the `-fields <fieldname>`, … parameter, the command output also includes the specified field or fields. You can use '-fields ?' to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <vserver name>] - Vserver (privilege: advanced)

If this parameter and the `-volume` parameter are specified, the command displays statistics for the FlexGroup constituents on the specified volume. If this parameter is specified by itself, the command displays statistics for the FlexGroup constituents on all volumes on the specified Vserver.

[-volume <volume name>] - Volume Name (privilege: advanced)

If this parameter and the `-vserver` parameter are specified, the command displays statistics for the FlexGroup constituents on the specified volume. If this parameter is specified by itself, the command displays statistics for the FlexGroup constituents on all volumes matching the specified name.

[-constituent <volume name>] - Constituent Name (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents matching the specified name.

[-source-files-inprogress <integer>] - Source Files In Progress (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of files currently being moved from them.

[-source-files-completed <integer>] - Source Files Completed (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of files already moved from them.

[-source-bytes-inprogress {<integer>[KB|MB|GB|TB|PB]}] - Source Bytes in Progress (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of bytes currently being moved from them (across all files currently being moved from them).

[-source-bytes-completed {<integer>[KB|MB|GB|TB|PB]}] - Source Bytes Completed (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of bytes already moved from them (across all files already moved from them).

[-destination-files-inprogress <integer>] - Destination Files In Progress (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of files currently being moved to them.

[-destination-files-completed <integer>] - Destination Files Completed (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of files already moved to them.

[-destination-bytes-inprogress {<integer>[KB|MB|GB|TB|PB]}] - Destination Bytes In Progress (privilege: advanced)

If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of bytes currently being moved to them (across all files currently being moved to them).

[-destination-bytes-completed {<integer>[KB|MB|GB|TB|PB]}] - Destination Bytes Completed (privilege: advanced)

> If this parameter is specified, the command displays statistics only for FlexGroup constituents which have the specified number of bytes already moved to them (across all files already moved to them).

Examples

The following example displays statistics for all FlexGroup constituents on the FlexGroup volume "bld_volume" in Vserver "vs0":

```
cluster1::*> volume rebalance file-move statistics show -vserver vs0
-volume bld_volume

Vserver: vs0
Volume: bld_volume
                                  Source                      Destination
Constituent                    Files        Bytes             Files
Bytes
-------------------    ----------   ----------    -----------
-----------
bld_volume__0001
        In Progress:           1          10GB                0
0B
           Completed:          5          20GB                0
0B
bld_volume__0002
        In Progress:           0           0B                 1
10GB
           Completed:          0           0B                 10
40GB
bld_volume__0003
        In Progress:           1           5GB                0
0B
           Completed:          15         100GB               0
0B
bld_volume__0004
        In Progress:           0           0B                 1
5GB
           Completed:          0           0B                 10
80GB
bld_volume__0005
        In Progress:           0           0B                 0
0B
           Completed:          0           0B                 0
0B
bld_volume__0006
        In Progress:           0           0B                 0
```

```
0B
        Completed:                0          0B                0
0B
bld_volume__0007
        In Progress:              0          0B                0
0B
        Completed:                0          0B                0
0B
bld_volume__0008
        In Progress:              0          0B                0
0B
        Completed:                0          0B                0
0B
```

The following example displays statistics for all FlexGroup constituents on the FlexGroup volume "bld_volume" in Vserver "vs0" with more than 4 files already sent from them:

```
cluster1::*> volume rebalance file-move statistics show -vserver vs0
-volume bld_volume -source-files-completed >4

Vserver: vs0
Volume: bld_volume
                            Source                    Destination
Constituent               Files        Bytes         Files
Bytes
------------------    -----------  -----------    -----------
-----------
bld_volume__0001
        In Progress:         1          10GB              0
0B
        Completed:           5          20GB              0
0B
bld_volume__0003
        In Progress:         1           5GB              0
0B
        Completed:          15         100GB              0
0B
```