lun commands

ONTAP commands

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lun commands

lun create

Create a new LUN

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

Description

This command creates a new LUN of a specific size. You cannot create a LUN at a path that already exists. You must create LUNs at the root of a volume or qtree. You can not create LUNs in the Vserver root volume.

You might find it useful to provide a meaningful path name for the LUN and containing volume. For example, you might choose a name that describes how the LUN is used, such as the name of the application, the type of data that it stores, or the user accessing the data. Examples are /vol/database/lun0, /vol/finance/lun1, and /vol/bill/lun2.

It is recommended that you distribute LUNs across the cluster.

When you can create a LUN, the size of the LUN could be larger than what you specified. The system generates a message if the size of the LUN is different from what you specified.

By default, when you create a LUN, it is online and it is space-reserved. Use the `lun offline` command to take a LUN offline. When you set space reserved to false, the LUN is non-space reserved.

For non-space reserved LUNs, write operations to that LUN might fail due to insufficient disk space. As a result, the host application or operating system might crash.

When you create a LUN from a file, that file cannot be deleted without deleting the LUN itself.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

{ `-path <path>` - LUN Path

Specifies the path of the new LUN. The LUN path cannot contain any files. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| `-volume <volume name>` - Volume Name

Specifies the volume that contains the new LUN.

`[-qtree <qtree name>]` - Qtree Name

Specifies the qtree that contains the new LUN.

`-lun <text>` - LUN Name }

Specifies the new LUN name. A LUN name is a case-sensitive name and has the following requirements:

- Must contain one to 255 characters. Spaces are not allowed.
- Can contain the letters A-Z, a-z, numbers 0-9, "-", "_", "}", "{", and ".".

{ -s, -size <size> - LUN Size

Specifies the size of the LUN in bytes. You can specify a one-character multiplier suffix:

- c (1 byte)
- w (2 bytes)
- B (512 bytes)
- k (1024 bytes)
- M (k*k bytes)
- G (k*m bytes)
- T (m*m bytes)

[-use-exact-size <true>] - Use Exact Size (privilege: advanced)

Create the LUN using the exact value specified by the `-size` parameter instead of rounding the size to best fit the LUN geometry. Size of the LUN must be a multiple of 512 bytes.

| -f, -file-path <text> - File Path }

Creates a LUN using the file path as the source.

| [-foreign-disk <text>] - Foreign Disk Serial number (privilege: advanced) }

LUN is created with the same attributes (size, alignment, bytes per sector and so on) as the specified foreign disk.

[-P, -prefix-size <size>] - Prefix Size (privilege: advanced)

Specifies the size of the prefix stream for the new LUN.

-t, -ostype <LUN Operating System Format> - OS Type

Specifies the OS type for the new LUN. + On an All SAN Array, the following OS types are supported:

- aix - the LUN will be used with AIX.
- hyper_v - the LUN will be used with Microsoft Hyper-V.
- linux - the LUN will be used with Linux.
- vmware - the LUN will be used with VMware VMFS.
- windows - the LUN will be used with Microsoft Windows.

```
+ On all other clusters, the following OS types are supported:
```

- aix - the LUN will be used with AIX.
- hpux - the LUN will be used with HP-UX.
- hyper_v - the LUN will be used with Microsoft Hyper-V.
- linux - the LUN will be used with Linux.
- netware - the LUN will be used with NetWare.

- openvms - the LUN will be used with Open-VMS.
- solaris - the LUN will be used with Solaris slice partitioning.
- solaris_efi - the LUN will be used with Solaris EFI partitioning.
- vmware - the LUN will be used with VMware VMFS.
- windows - the LUN will be used with a Master Boot Record (MBR) partition table on Microsoft Windows 2003 or earlier.
- windows_2008 - the LUN will be used with Microsoft Windows 2008 or later.
- windows_gpt - the LUN will be used with a GUID Partition Type (GPT) partition table on Microsoft Windows.
- xen - the LUN will be used with Xen

[-space-reserve {enabled|disabled}] - Space Reservation

Specifies whether the space reservation setting is *enabled* or *disabled* for the new LUN. If you set the parameter to *enabled* , the LUN is space-reserved. If you set the parameter to *disabled* , the LUN is non-space reserved. The default is *enabled* .

[-comment <text>] - Comment

A description for the LUN you want to create. If the comment string contains white space, you must enclose the comment string in double quotes. The limit is 254 characters.

[-space-allocation {enabled|disabled}] - Space Allocation

Specifies the value for the space allocation attribute of the LUN. The space allocation attribute determines if the LUN supports the SCSI Thin Provisioning features defined in the Logical Block Provisioning section of the SCSI SBC-3 standard.

Specifying *enabled* for this parameter enables support for the SCSI Thin Provisioning features.

Specifying *disabled* for this parameter disables support for the SCSI Thin Provisioning features.

Hosts and file systems that do not support SCSI Thin Provisioning should not enable space allocation.

The default is *disabled* .

[-class {regular|protocol-endpoint|vvol}] - Class

Specifies the class of the new LUN. The class types are:

- regular - the LUN is for normal blocks protocol access. This is the default value.
- protocol-endpoint - the LUN is a vvol protocol endpoint.
- vvol - the LUN is a vvol data LUN.

{ [-qos-policy-group <text>] - QoS Policy Group

This optionally specifies which QoS policy group to apply to the LUN. This policy group defines measurable service level objectives (SLOs) that apply to the storage objects with which the policy group is associated. If you do not assign a policy group to a LUN, the system will not monitor and control the traffic to it.

If you specify this parameter for a LUN that you want to create from a file and that file belongs to a QoS policy group, Data ONTAP adds the LUN to the specified policy group and removes the file from its policy group. Both the file and the LUN that you created from the file cannot belong to QoS policy groups.

| [-qos-adaptive-policy-group <text>] - QoS Adaptive Policy Group }

This optionally specifies which QoS adaptive policy group to apply to the LUN. This policy group defines measurable service level objectives (SLOs) and service level agreements (SLAs) that adjust based on the LUN's allocated space or used space.

[-caching-policy <text>] - Caching Policy Name

This optionally specifies the caching policy to apply to the LUN. A caching policy defines how the system caches this volume's data in Flash Cache modules. If a caching policy is not assigned to this LUN, the system uses the caching policy that is assigned to the containing volume or Vserver. If a caching policy is not assigned to the containing volume or Vserver, the system uses the default cluster-wide policy. The available caching policies are:

- none - Does not cache any user data or metadata blocks.
- auto - Read caches all metadata and randomly read user data blocks, and write caches all randomly overwritten user data blocks.

Default caching-policy is auto.

Examples

```
cluster1::> lun create -vserver vs1 -path /vol/vol1/lun1 -size 100M
-ostype linux
```

Creates a 100MB LUN at path */vol/vol1/lun1* in Vserver *vs1* . The OS type is Linux, and the state is online.

lun delete

Delete the LUN

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

Description

This command deletes a LUN from a specified Vserver and volume. If the LUN is mapped and online, the force option is required to delete it.

If a LUN is mapped to an initiator group, you can unmap it by using the lun unmap command. If a LUN is online, you take it offline by using the `lun offline` command.

If you create a LUN from a file, you cannot remove the file while the LUN is linked to it. If you want to remove the file, you must first delete the LUN.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

{ -path <path> - LUN Path

Specifies the path of the LUN you want to delete. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume that contains the LUN you want to delete.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree that contains the LUN you want to delete.

-lun <text> - LUN Name }

Specifies the LUN that you want to delete.

[-f, -force <true>] - Force Deletion of an Online and Mapped LUN

Force deletion of an online LUN that is mapped to an initiator group.

[-force-fenced <true>] - Force Deletion of a Fenced LUN

Force deletion of a LUN that is currently fenced.

Examples

```
cluster1::> lun delete -vserver vs1 -path /vol/vol1/lun1
```

Deletes the LUN at path /vol/vol1/lun1 on Vserver vs1.

Related Links

- lun unmap

lun maxsize

Display the maximum possible size of a LUN on a given volume or qtree.

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

Description

This command returns the maximum size of LUNs for different OS types in a volume or qtree. The command also includes possible maximum size for LUNs with Snapshots or without Snapshots. You can specify the path of the volume or qtree to determine the maximum size of a LUN that you want to create within that volume or qtree.

If you do not specify a path, the command returns the maximum LUN size for each OS type for all volumes and qtrees in a cluster.

The available space in a volume can change over time which means that the size reported by `lun maxsize` can change as well. In addition, the maximum LUN size allowed in a lun resize command may be less than the size reported by `lun maxsize` .

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 Name

Specifies the Vserver.

{ [-path <qtree path>] - Volume or Qtree Path

Specifies the path of the root volume or qtree. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

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

Specifies the volume that contains the LUN you want to get the maximum size for.

[-qtree <qtree name>] - Qtree Name }

Specifies the qtree that contains the LUN you want to get the maximum size for.

[-t, -ostype <text>] - OS Type

Specifies the OS type for the new LUN. + On an All SAN Array, the following OS types are supported:

- aix - the LUN will be used with AIX.
- hyper_v - the LUN will be used with Microsoft Hyper-V.
- linux - the LUN will be used with Linux.
- vmware - the LUN will be used with VMware VMFS.
- windows - the LUN will be used with Microsoft Windows.

```
+ On all other clusters, the following OS types are supported:
```

- aix - the LUN will be used with AIX.
- hpux - the LUN will be used with HP-UX.
- hyper_v - the LUN will be used with Microsoft Hyper-V.
- linux - the LUN will be used with Linux.
- netware - the LUN will be used with NetWare.
- openvms - the LUN will be used with Open-VMS.
- solaris - the LUN will be used with Solaris slice partitioning.

- solaris_efi - the LUN will be used with Solaris EFI partitioning.
- vmware - the LUN will be used with VMware VMFS.
- windows - the LUN will be used with a Master Boot Record (MBR) partition table on Microsoft Windows 2003 or earlier.
- windows_2008 - the LUN will be used with Microsoft Windows 2008 or later.
- windows_gpt - the LUN will be used with a GUID Partition Type (GPT) partition table on Microsoft Windows.
- xen - the LUN will be used with Xen

[-complete-ss-reserve <size>] - With Complete Snapshot Reserve

Shows the maximum size possible of a LUN if you have the complete Snapshot reserve enabled.

[-ss-reserve <size>] - With Snapshot Reserve

Shows the maximum size possible of a LUN if you have the Snapshot reserve enabled.

[-without-ss-reserve <size>] - Without Snapshot Reserve

Shows the maximum size possible of a LUN if you have no Snapshot reserve enabled.

Examples

```
cluster1::> lun maxsize -vserver vs1 -volume vol1 -ostype linux
Virtual                                        Without    With SS
Complete
Server     Volume       Qtree        OS Type  SS Reserve Reserve   SS
Reserve
---------- ------------ ------------ -------- ---------- ---------
----------
vs1        vol1         ""           linux          45MB      45MB
45MB
```

Displays the maximum size of a LUN for the OS type linux.

```
cluster1::> lun maxsize -vserver vs1 -volume vol1
                                                    Without   With SS
Complete
Vserver    Volume       Qtree        OS Type  SS Reserve   Reserve SS
Reserve
---------- ------------ ------------ -------- ---------- ---------
----------
vs1        vol1         ""           aix           178MB     178MB
178MB
             hpux          178MB     178MB      178MB
             hyper_v     172.6MB   172.6MB    172.6MB
             linux         178MB     178MB      178MB
             netware       178MB     178MB      178MB
             openvms       178MB     178MB      178MB
             solaris       178MB     178MB      178MB
             solaris_efi   178MB     178MB      178MB
             windows     172.6MB   172.6MB    172.6MB
             windows_2008
                         172.6MB   172.6MB    172.6MB
             windows_gpt 172.6MB   172.6MB    172.6MB
             xen           178MB     178MB      178MB
12 entries were displayed.
```

Displays the maximum size of LUNs for all OS types on volume vol1.

Related Links

- lun resize

lun modify

Modify a LUN

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

Description

This command modifies LUN attributes. Because LUN modifications can result in data corruption or other problems, we recommend that you call technical support if you are unsure of the possible consequences of modifying a LUN.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

{ -path <path> - LUN Path

Specifies the path for the LUN you want to modify. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume for the LUN you want to modify.

-qtree <qtree name> - Qtree Name

Specifies the qtree for the LUN you want to modify.

-lun <text> - LUN Name }

Specifies the name for the LUN you want to modify. A LUN name is a case-sensitive name and has the following requirements:

- Must contain one to 255 characters. Spaces are not allowed.
- Can contain the letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), right bracket (}), left bracket ({) and period (.).
- Must start with a letter or number.

[-space-reserve {enabled|disabled}] - Space Reservation

Specifies whether the space reservation setting is enabled or disabled for a LUN. If you set the parameter to *enabled* , the LUN is space-reserved. If you set the parameter to *disabled* , the LUN is non-space reserved. The default is *enabled* .

{ [-serial <text>] - Serial Number

Specifies the serial number for the LUN you want to modify.

The LUN serial number is a twelve-character alphanumeric string containing one or more of the following:

- upper- and lower-case letters
- numbers
- the characters: , <, >, /, -, #, $, %, *, +, =, ?, @, [, !,], ^, ~

Some of the characters that are valid in a LUN serial number also have special meaning to the cluster shell command line:

- The question mark (?) activates the command line active help. In order to type a question mark as part of a LUN's serial number, it is necessary to disable active help with the command set -active-help false . Active help can later be re-enabled with the command set -active-help true .
- The number sign (#) indicates the beginning of a comment to the command line and will cause the remainder of the line to be ignored. To avoid this, enclose the serial number in double quotes (").

Alternatively, the `-serial-hex` parameter can be used to set the LUN serial number specifying the serial number encoded in hexadecimal form.

| [-serial-hex <Hex String>] - Serial Number (Hex) }

Specifies the serial number, encoded in hexadecimal form, for the LUN you want to modify. See the description of the `-serial` parameter for additional details.

[-comment <text>] - Comment

Specifies the comment for the LUN you want to modify.

[-space-allocation {enabled|disabled}] - Space Allocation

Specifies the new value for the space allocation attribute of the LUN. The space allocation attribute determines if the LUN supports the SCSI Thin Provisioning features defined in the Logical Block Provisioning section of the SCSI SBC-3 standard.

Specifying *enabled* for this parameter enables support for the SCSI Thin Provisioning features.

Specifying *disabled* for this parameter disables support for the SCSI Thin Provisioning features.

Hosts and file systems that do not support SCSI Thin Provisioning should not enable space allocation.

[-state {online|offline|nvfail|space-error|foreign-lun-error}] - State

Specifies the administrative state of a LUN. The options are:

- online
- offline

{ [-device-legacy-id <integer>] - Device Legacy ID

Specifies the device legacy ID for the LUN you want to modify.

| [-device-binary-id <text>] - Device Binary ID

Specifies the device binary ID for the LUN you want to modify.

| [-clear-binary-id <true>] - Clear Device Binary ID }

Clears the binary format of the optional device ID.

{ [-device-text-id <text>] - Device Text ID

Specifies the device text ID for the LUN you want to modify.

| [-clear-text-id <true>] - Clear Device Text ID }

Clears the text format of the optional device ID.

{ [-qos-policy-group <text>] - QoS Policy Group

This optionally specifies which QoS policy group to apply to the lun. This policy group defines measurable service level objectives (SLOs) that apply to the storage objects with which the policy group is associated. If you do not assign a policy group to a lun, the system will not monitor and control the traffic to it. To remove this lun from a policy group, enter the reserved keyword "none".

| [-qos-adaptive-policy-group <text>] - QoS Adaptive Policy Group }

This optional parameter specifies which QoS adaptive policy group to apply to the LUN. This policy group defines measurable service level objectives (SLOs) and Service Level Agreements (SLAs) that adjust based on the LUN's allocated space or used space. To remove this LUN from an adaptive policy group, enter the reserved keyword "none".

[-caching-policy <text>] - Caching Policy Name

This optionally specifies the caching policy to apply to the LUN. A caching policy defines how the system caches this volume's data in Flash Cache modules. If a caching policy is not assigned to this LUN, the

system uses the caching policy that is assigned to the containing volume or Vserver. If a caching policy is not assigned to the containing volume or Vserver, the system uses the default cluster-wide policy. The available caching policies are:

- none - Does not cache any user data or metadata blocks.
- auto - Read caches all metadata and randomly read user data blocks, and write caches all randomly overwritten user data blocks.

Default caching-policy is auto.

Examples

```
cluster1::> lun modify -path /vol/vol1/lun1 -space-reserve disable
```

Disables the space reserve attribute for LUN /vol/vol1/lun1.

```
cluster1::> lun modify -path /vol/vol1/lun1 -state offline
```

Takes the LUN /vol/vol1/lun1 offline.

```
cluster1::> lun modify -path /vol/vol1/lun1 -comment "new comment"
```

Adds the comment "new comment" to the LUN /vol/vol1/lun1.

Related Links

- set

lun move-in-volume

Move a LUN within a volume

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

Description

This command moves a LUN to a new path in the same volume or renames a LUN. If you are organizing LUNs in a qtree, the command moves a LUN from one qtree to another. You can perform a LUN move while the LUN is online and serving data. The process is non-disruptive. Use the lun move start command to move a LUN to a different volume within the same Vserver.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

{ -path <path> - LUN Path

Specifies the path of the LUN you want to move. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume of the LUN you want to move.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree of the LUN you want to move.

-lun <text> - LUN Name }

Specifies the name of the LUN that you want to move.

{ -new-path <path> - New LUN Path

Specifies the new path of the LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| [-new-qtree <qtree name>] - New Qtree Name

Specifies the new qtree name that you want to move the LUN to.

-new-lun <text> - New LUN Name }

Specifies the new name of the LUN.

Examples

```
cluster1::> lun move-in-volume -vserver vs1 -volume vol1 -lun lun1 -new
-lun newlun1
```

Renames *lun1* to *newlun1* on Vserver *vs1* and volume *vol1* .

```
cluster1::> lun show -vserver vs1 -volume vol1
server   Path                            State   Mapped   Type
Size
-------- ------------------------------- ------- -------- --------
--------
s1       /vol/vol1/A/lun1                online  mapped   linux
10MB

luster1::> lun move-in-volume -vserver vs1 -path /vol/vol1/A/lun1 -new
-path /vol/vol1/B/lun1

luster1::> lun show -vserver vs1 -volume vol1
server   Path                            State   Mapped   Type
Size
-------- ------------------------------- ------- -------- --------
--------
s1       /vol/vol1/B/lun1                online  mapped   linux
10MB
```

Moves LUN *lun1* from qtree *A* to qtree *B* on volume *vol1* .

Related Links

- lun move start

lun resize

Changes the size of the LUN to the input value size.

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

Description

This command resizes a LUN. You can resize a LUN that is mapped and online. However, to prevent any potential problems, take the LUN offline before resizing it.

When you reduce the size of the LUN, the data in the LUN could be truncated. You will receive an error message if you reduce the size of the LUN. To avoid this error message, use the force parameter.

When you increase the size of a LUN, the maximum resize size is based on the initial geometry of the LUN and the currently available space in the volume. You will receive an error message if you exceed this limit. The lun show`-instance` command reports the "Maximum Resize Size" for a LUN based on the initial geometry. The lun maxsize command reports the maximum LUN size based on the available space. The maximum size of the LUN is the smaller of the two limits issued by the lun show`-instance` command or the lun maxsize command.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

{ -path <path> - LUN Path

Specifies the path of the LUN that you want to resize. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume that contains the LUN that you want to resize.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree that contains the LUN that you want to resize.

-lun <text> - LUN Name }

Specifies the LUN name that you want to resize.

[-f, -force <true>] - Force Reduce LUN Size

Overrides any warnings if you are reducing the size of the LUN. If you use this parameter without a value, it is set to true, and the command does not prompt you when reducing the size of a LUN would produce warnings. If you do not use this parameter, the command displays an error if reducing the size of a LUN would create a problem.

[-size <size>] - New Size

Specifies the new size of the LUN.

- c (1 byte)
- w (2 bytes)
- B (512 bytes)
- k (1024 bytes)
- M (k*k bytes)
- G (k*m bytes)
- T (m*m bytes)

Examples

```
cluster1::> lun resize -vserver vs1 -path /vol/vol1/lun1 -size 500M -force
```

Resizes LUN /vol/vol1/lun1 on Vserver vs1 to 500M, overriding all warnings.

```
cluster1::> lun resize -vserver vs1 -path /vol/vol1/lun1 -size +5m

cluster1::> lun show -vserver vs1 -volume vol1
Vserver   Path                            State   Mapped   Type
Size
--------- ------------------------------- ------- -------- --------
--------
vs1
          /vol/vol1/lun1                  online  mapped   linux
15MB
```

Adds 5M of space to LUN /vol/vol1/lun1 for a total of 15MB.

```
cluster1::> lun resize -vserver vs1 -path /vol/vol1/lun1 -size -10m

Error: command failed: Reducing LUN size without coordination with the
host system
       may cause permanent data loss or corruption. Use the force flag to
allow
       LUN size reduction.

cluster1::> lun resize -path /vol/vol1/lun1 -size -5m -f

cluster1::> lun show -vserver vs1 -volume vol1
Vserver   Path                            State   Mapped   Type
Size
--------- ------------------------------- ------- -------- --------
--------
vs1
          /vol/vol1/lun1                  online  mapped   linux
10MB
```

Resizes the LUN /vol/vol1/lun1 from 15MB to 10MB, overriding all warnings.

Related Links

- lun show
- lun maxsize

lun show

Display a list of LUNs

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

Description

The command displays information for LUNs. Use the `instance` parameter to display additional LUN details, such as serial number and space-reservation settings.

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 Name

Selects the LUNs that match this parameter value.

{ [-path <path>] - LUN Path

Selects the LUNs that match this parameter value. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1*

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

Selects the LUNs that match this parameter value.

[-qtree <qtree name>] - Qtree Name

Selects the LUNs that match this parameter value.

[-lun <text>] - LUN Name }

Selects the LUNs that match this parameter value.

[-s, -size <size>] - LUN Size

Selects the LUNs that match this parameter value.

[-P, -prefix-size <size>] - Prefix Size (privilege: advanced)

Selects the LUNs that match the prefix stream size that you specify.

[-t, -ostype <LUN Operating System Format>] - OS Type

Selects the LUNs that match this parameter value. The operating system types are:

- *aix* - the LUN stores AIX data.
- *hpux* - the LUN stores HP-UX data.
- *hyper_v* - the LUN stores Windows Server 2008 or Windows Server 2012 Hyper-V data
- *linux* - the LUN stores a Linux raw disk without a partition table.
- *netware* - the LUN stores NetWare data.
- *openvms* - the LUN stores Open-VMS data
- *solaris* - the LUN stores Solaris raw disk in a single-slice partition.

- *solaris_efi* - the LUN stores Solaris_EFI data.
- *vmware* - the LUN stores VMware data
- *windows* - the LUN stores a raw disk type in a single-partition Windows disk using the Master Boot Record (MBR) partitioning style.
- *windows_gpt* - the LUN stores Windows data using the GUID Partition Type (GPT) partitioning style.
- *windows_2008* - the LUN stores Windows data for Windows 2008 or later systems.
- *xen* - the LUN stores Xen data

[-space-reserve {enabled|disabled}] - Space Reservation

Selects the LUNs that match this parameter value. A value of *enabled* selects LUN that are space-reserved. A value of *disabled* select LUNs that are non-space reserved.

[-serial <text>] - Serial Number

Selects the LUNs that match this parameter value.

The LUN serial number is a twelve-character alphanumeric string containing one or more of the following:

- upper- and lower-case letters
- numbers
- the characters: , <, >, /, -, #, $, %, *, +, =, ?, @, [, !,], ^, ~

Some of the characters that are valid in a LUN serial number also have special meaning to the cluster shell command:

- The question mark (?) activates the command line active help. In order to type a question mark as part of a LUN's serial number, it is necessary to disable active help with the command set -active-help false . Active help can later be re-enabled with the command set -active-help true .
- The number sign (#) indicates the beginning of a comment to the command line and will cause the remainder of the line to be ignored. To avoid this, enclose the serial number in double quotes (").
- The less than (<), greater than (>), asterisk (*), and exclamation point (!) influence the query behavior of the command. To use these as characters in a LUN's serial query, you must first press escape (ESC). To use these characters to influence the query, enclose the serial number, or partial serial number, in double quotes (") and apply <, >, *, or !, outside of the double quotes.

Alternatively, the `-serial-hex` parameter can be used to select LUNs using the serial number encoded in hexadecimal form.

[-serial-hex <Hex String>] - Serial Number (Hex)

Selects the LUNs that match this parameter value. This parameter applies to the LUN serial number encoded in hexadecimal form. See the description of the `-serial` parameter for additional details.

[-comment <text>] - Comment

Selects the LUNs that match this parameter value.

[-space-reserve-honored {true|false}] - Space Reservations Honored

Selects the LUNs that match this parameter value. A value of *true* select LUNs that have their space reservation honored by the container volume. A value of *false* displays the LUNs that are non-space reserved.

[-space-allocation {enabled|disabled}] - Space Allocation

Selects the LUNs that match this parameter value. The space allocation attribute determines if the LUN supports the SCSI Thin Provisioning features defined in the Logical Block Provisioning section of the SCSI SBC-3 standard.

Specifying *enabled* for this parameter selects LUNs with support enabled for the SCSI Thin Provisioning features.

Specifying *disabled* for this parameter selects LUNs with support disabled for the SCSI Thin Provisioning features.

Hosts and file systems that do not support SCSI Thin Provisioning should not enable space allocation.

[-container-state {online|aggregate-offline|volume-offline|error}] - LUN Container State (privilege: advanced)

Selects the LUNs that match this parameter value. The container states are:

- *online* - The LUN's aggregate and volume are online.
- *aggregate-offline* - The LUN's aggregate is offline.
- *volume-offline* - The LUN's volume is offline.
- *error* - An error occurred accessing the LUN's volume.

[-state {online|offline|nvfail|space-error|foreign-lun-error}] - State

Selects the LUNs that match this parameter value. The states are:

- *online* - The LUN is online.
- *offline* - The LUN is administratively offline, or a more detailed offline reason is not available.
- *foreign-lun-error* - The LUN has been automatically taken offline due to a media error on the associated foreign LUN.
- *nvfail* - The LUN has been automatically taken offline due to an NVRAM failure.
- *space-error* - The LUN has been automatically taken offline due to insufficient space.

[-uuid <UUID>] - LUN UUID

Selects the LUNs that match this parameter value.

[-mapped {mapped|unmapped}] - Mapped

Selects the LUNs that match this parameter value. A value of `mapped` selects the LUNs that are mapped to an initiator group.

[-block-size {512|4KB}] - Physical Size of Logical Block

Selects the LUNs that match this parameter value.

[-device-legacy-id <integer>] - Device Legacy ID

Selects the LUNs that match this parameter value.

[-device-binary-id <text>] - Device Binary ID

Selects the LUNs that match this parameter value.

[-device-text-id <text>] - Device Text ID

Selects the LUNs that match this parameter value.

[-read-only {true|false}] - Read Only

Selects the LUNs that match this parameter value.

[-restore-inaccessible {true|false}] - Fenced Due to Restore

Selects the LUNs that match the state you specify. A value of *true* means that a LUN is fenced for I/O and management due to a restore operation.

[-size-used <size>] - Used Size

Selects the LUNs that match this parameter value.

[-max-resize-size <size>] - Maximum Resize Size

Selects the LUNs that match this parameter value.

[-creation-timestamp <MM/DD/YYYY HH:MM:SS>] - Creation Time

Selects the LUNs that match this parameter value.

[-class {regular|protocol-endpoint|vvol}] - Class

Selects the LUNs that match this parameter value.

[-node <nodename>] - Node Hosting the LUN

Selects the LUNs that match this parameter value.

[-qos-policy-group <text>] - QoS Policy Group

Selects the LUNs that match this parameter value.

A policy group defines measurable service level objectives (SLOs) that apply to the storage objects with which the policy group is associated. If you do not assign a policy group to a LUN, the system will not monitor and control the traffic to it.

[-qos-adaptive-policy-group <text>] - QoS Adaptive Policy Group

Selects the LUNs that match this parameter value.

An adaptive policy group defines measurable service level objectives (SLOs) that apply to the storage objects with which the adaptive policy group is associated.

[-caching-policy <text>] - Caching Policy Name

Display the LUNs that match the specified cache.

A caching policy defines the caching behavior of this LUN at the Flash Cache level. If a caching policy is not assigned to this LUN, the system uses the caching policy that is assigned to the containing volume or Vserver. If a caching policy is not assigned to the containing volume or Vserver, the system uses the default cluster-wide policy. The available caching policies are:

- none - Does not cache any user data or metadata blocks.
- auto - Read caches all metadata and randomly read user data blocks, and write caches all randomly overwritten user data blocks.

Default caching-policy is auto.

[-is-clone {true|false}] - Clone

Selects the LUNs that match this parameter value.

[-is-clone-autodelete-enabled {true|false}] - Clone Autodelete Enabled

Selects the LUNs that match this parameter value.

[-inconsistent-import {true|false}] - Inconsistent Import

Selects the LUNs that match this parameter value. A value of *true* means that the import of this LUN is incomplete.

[-serial-7-mode <text>] - 7-mode Serial Number (privilege: advanced)

Selects the LUNs that match this parameter value.

LUNs transitioned from Data ONTAP 7-Mode are assigned new serial numbers for use with Clustered Data ONTAP. The original 7-Mode serial number is displayed in this field for reference.

[-application <text>] - Application

Selects the LUNs that are part of an application that matches the parameter value.

[-include-offline-containers <true>] - Include LUNs on Offline Volumes and Aggregates (privilege: advanced)

If true, include available information for LUNs in offline aggregates and offline volumes in the output. By default, LUNs in offline aggregates and offline volumes are excluded from the output.

Examples

The following example displays details of the LUN at path /vol/vol1/lun1 in Vserver vs1.

```
cluster1::> lun show -vserver vs1 -path /vol/vol1/lun1 -instance
              Vserver Name: vs1
                  LUN Path: /vol/vol1/lun1
               Volume Name: vol1
                Qtree Name: ""
                  LUN Name: lun1
                  LUN Size: 10MB
                   OS Type: linux
         Space Reservation: disabled
             Serial Number: wCVt1]IlvQWv
       Serial Number (Hex): 77435674315d496c76515776
                   Comment: new comment
Space Reservations Honored: false
          Space Allocation: disabled
                     State: offline
                  LUN UUID: 76d2eba4-dd3f-494c-ad63-1995c1574753
                    Mapped: mapped
              Block Size: 512
          Device Legacy ID: -
          Device Binary ID: -
            Device Text ID: -
                 Read Only: false
     Fenced Due to Restore: false
                 Used Size: 5MB
       Maximum Resize Size: 64.00GB
             Creation Time: 9/14/2016 13:55:09
                     Class: regular
      Node Hosting the LUN: node1
          QoS Policy Group: -
       Caching Policy Name: -
                     Clone: false
  Clone Autodelete Enabled: false
       Inconsistent Import: false
               Application: -
```

The following example displays information for the LUN with serial number 1r/wc+9Cpbls:

```
cluster1::> lun show -serial 1r/wc+9Cpbls
Vserver   Path                            State   Mapped   Type
Size
--------- ------------------------------- ------- -------- --------
--------
vs1       /vol/vol2/lun1                  online  mapped   linux
10MB
```

The following example displays all the LUNs on Vserver vs1 and volume vol1:

```
cluster1::> lun show -vserver vs1 -volume vol1
Vserver   Path                            State   Mapped   Type
Size
--------- ------------------------------- ------- -------- --------
--------
vs1       /vol/vol1/lun1                  offline mapped   linux
10MB
vs1       /vol/vol1/lun2                  online  mapped   windows
47.07MB
2 entries were displayed.
```

Related Links

- set

lun bind commands

lun bind create

Bind a VVol LUN to a protocol endpoint

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

Description

This command creates a new binding between a protocol endpoint and a vvol LUN. If a binding between the specified endpoint and vvol already exists, the reference count for the binding is incremented by one.

For optimal results, the protocol endpoint and vvol must be hosted by the same node in the cluster.

Parameters

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

Specifies the name of the Vserver.

`-protocol-endpoint-path <path>` - Protocol Endpoint (privilege: advanced)

Specifies the path to the protocol endpoint. The specified LUN must already exist and be of class "protocol-endpoint". Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

`-vvol-path <path>` - VVol Path (privilege: advanced)

Specifies the path to the vvol. The specified LUN must already exist and be of the class "vvol". Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::*> lun bind create -vserver vs1 -protocol-endpoint-path
/vol/VV1/PE1 -vvol-path /vol/VV3/234ace
```

Bind the vvol /vol/VV3/234ace to the protocol endpoint /vol/VV1/PE1 in Vserver vs1.

lun bind destroy

Unbind a VVol LUN from a protocol endpoint

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

Description

Decrement the reference count of the binding between a protocol endpoint and vvol LUN. If the resulting reference count is zero, the binding is removed.

Parameters

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

Specifies the Vserver.

`-protocol-endpoint-path <path>` - Protocol Endpoint (privilege: advanced)

Specifies the path of the protocol endpoint LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

`-vvol-path <path>` - VVol Path (privilege: advanced)

Specifies the path of the vvol LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

`[-force <true>]` - If true, unbind the Vvol completely even if the current reference count is greater than 1. The default is false. (privilege: advanced)

Completely remove the specified binding, regardless of the current reference count.

Examples

```
cluster1::*> lun bind destroy -protocol-endpoint-path /vol/VV2/PE2 -vvol
-path /vol/VV2/30dfab -vserver vs1
```

Remove the binding between the vvol /vol/VV2/30dfab and the protocol endpoint /vol/VV2/PE2 on Vserver vs1.

lun bind show

Show list of Vvol bindings

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

Description

Shows the configured VVol to protocol endpoint bindings.

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 Name (privilege: advanced)

Selects the bindings that match this parameter value.

[-protocol-endpoint-msid <integer>] - PE MSID (privilege: advanced)

Selects the bindings that match this parameter value.

[-protocol-endpoint-vdisk-id <text>] - PE Vdisk ID (privilege: advanced)

Selects the bindings that match this parameter value.

[-vvol-msid <integer>] - VVol MSID (privilege: advanced)

Selects the bindings that match this parameter value.

[-vvol-vdisk-id <text>] - VVol Vdisk ID (privilege: advanced)

Selects the bindings that match this parameter value.

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

Selects the bindings that match this parameter value.

[-protocol-endpoint-path <path>] - Protocol Endpoint (privilege: advanced)

Selects the bindings that match this parameter value. Examples of correct LUN paths are *`/vol/vol1/lun1`* and *`/vol/vol1/qtree1/lun1`* .

[-protocol-endpoint-node <nodename>] - PE Node (privilege: advanced)

Selects the bindings that match this parameter value.

[-vvol-path <path>] - VVol (privilege: advanced)

Selects the bindings that match this parameter value. Examples of correct LUN paths are *`/vol/vol1/lun1`* and *`/vol/vol1/qtree1/lun1`* .

[-vvol-node <nodename>] - VVol Node (privilege: advanced)

Selects the bindings that match this parameter value.

[-secondary-lun <Hex 64bit Integer>] - Secondary LUN (privilege: advanced)

Selects the bindings that match this parameter value.

[-is-optimal {true|false}] - Optimal binding (privilege: advanced)

Selects the bindings that match this parameter value.

[-reference-count <integer>] - Reference Count (privilege: advanced)

Selects the bindings that match this parameter value.

Examples

```
cluster1::*> lun bind show -vserver vs1
Vserver        Protocol Endpoint                  Node
                   Vvol LUN                            Secondary LUN
Optimal?
-------------- ------------------------------------ --------------
--------
vs1            /vol/VV1/PE1                       cluster-node1
                   /vol/VV2/30dfab                     d20000010000 false
                   /vol/VV3/234ace                     d20000020000 true
                   /vol/VV3/234acf                     d20000030000 true
               /vol/VV2/PE2                       cluster-node2
                   /vol/VV2/30dfab                     d20000010000 true
4 entries were displayed.
```

The example above displays all the LUN bindings on Vserver vs1.

lun copy commands

lun copy cancel

Cancel a LUN copy operation before the new LUN has been created

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

Description

The `lun copy cancel` command cancels an ongoing LUN copy operation prior to creation of the new LUN. The command fails if the LUN already exists at the destination path; in that case, use the lun delete command to delete the LUN at the destination path.

All data transfers will be halted.

This is an advanced command because the preferred way to cancel a LUN copy operation is to wait until the new LUN becomes visible, and then use the lun delete command to delete the LUN.

Parameters

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

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path (privilege: advanced)

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::*> lun copy cancel -vserver vs1 -destination-path /vol/vol2/lun2
```

Cancels the copy operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

Related Links

- lun delete

lun copy modify

Modify an ongoing LUN copy operation

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

Description

The `lun copy modify` command modifies the maximum throughput of an ongoing copy operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

-max-throughput {<integer>[KB|MB|GB|TB|PB]} - Maximum Transfer Rate (per sec)

Specifies the maximum amount of data, in bytes, that can be transferred per second in support of this operation. This mechanism can be used to throttle a transfer, to reduce its impact on the performance of the source and destination nodes.

The specified value will be rounded up to the nearest megabyte.

Examples

```
cluster1::> lun copy modify -vserver vs1 -destination-path /vol/vol2/lun2
-max-throughput 25MB
```

Modifies the maximum throughput for the ongoing copy job identified by Vserver *vs1* and destination path

/vol/vol2/lun2 to 25 MB/sec.

lun copy pause

Pause an ongoing LUN copy operation

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

Description

The `lun copy pause` command pauses an ongoing copy operation. Use the lun copy resume command to resume the copy operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::> lun copy pause -vserver vs1 -destination-path /vol/vol2/lun2
```

Pauses the ongoing copy operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

Related Links

- lun copy resume

lun copy resume

Resume a paused LUN copy operation

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

Description

The `lun copy resume` command resumes a paused copy operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::> lun copy resume -vserver vs1 -destination-path /vol/vol2/lun2
```

Resumes the paused copy operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

lun copy show

Display a list of LUNs currently being copied

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

Description

The `lun copy show` command shows information about LUNs currently being copied in the cluster.

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>] - Destination Vserver Name

Selects LUN copy operations that match this parameter value.

[-destination-path <path>] - Destination Path

Selects LUN copy operations that match this parameter value.

[-source-vserver <vserver name>] - Source Vserver Name

Selects LUN copy operations that match this parameter value.

[-source-path <path>] - Source Path

Selects LUN copy operations that match this parameter value.

[-source-snapshot <snapshot name>] - Source Snapshot Name

Selects LUN copy operations that match this parameter value.

[-is-promoted-early {true|false}] - Is Destination Promoted Early

Selects LUN copy operations that match this parameter value.

[-max-throughput {<integer>[KB|MB|GB|TB|PB]}] - Maximum Transfer Rate (per sec)

Selects LUN copy operations that match this parameter value.

[-job-status {Preparing|Allocation-Map|Data|Destroying|Paused-Admin|Paused-Error|Complete|Destroyed}] - LUN Copy Status

Selects LUN copy operations that match this parameter value. The possible values are:

- `Preparing` - the LUN copy job is in Preparing status.
- `Allocation-Map` - the LUN copy job is in Allocating status.
- `Data` - the LUN copy job is in Moving Data status.
- `Destroying` - the LUN copy job is in Destroying status.
- `Paused-Admin` - the LUN copy job is in Paused By Admin status.
- `Paused-Error` - the LUN copy job is in Paused By Error status.
- `Complete` - the LUN copy job is in Complete status.
- `Destroyed` - the LUN copy job is in Destroyed status.

[-progress-percent <percent>] - LUN Copy Progress (%)

Selects LUN copy operations that match this parameter value.

[-elapsed-time <time_interval>] - Elapsed Time

Selects LUN copy operations that match this parameter value.

[-cutover-time <time_interval>] - Cutover Time

Selects LUN copy operations that match this parameter value.

[-is-snapshot-fenced {true|false}] - Is Snapshot Fenced

Selects LUN copy operations that match this parameter value.

[-is-destination-ready {true|false}] - Is Destination Ready

Selects LUN copy operations that match this parameter value.

[-last-failure-reason <text>] - Last Failure Reason

Selects LUN copy operations that match this parameter value.

Examples

```
cluster1::> lun copy show
Vserver   Destination Path                Status          Progress
--------- ------------------------------ --------------- --------
vs1       /vol/vol2/lun1                 Data            35%
vs1       /vol/vol2/lun2                 Complete        100%
2 entries were displayed.
```

The example above displays information about all the LUN copy operations in the cluster.

```
cluster1::> lun copy show -vserver vs1 -destination-path /vol/vol2/lun1
-instance
Destination Vserver Name: vs1
               Destination Path: /vol/vol2/lun1
            Source Vserver Name: vs1
                    Source Path: /vol/vol1/lun1
          Source Snapshot Name: -
  Is Destination Promoted Early: false
Maximum Transfer Rate (per sec): 0B
                 LUN Copy Status: Data
          LUN Copy Progress (%): 35%
                   Elapsed Time: 145s
            Cutover Time (secs): 0s
             Is Snapshot Fenced: true
           Is Destination Ready: true
            Last Failure Reason: -
```

The example above displays all information about the LUN being copied to */vol/vol2/lun1* in Vserver *vs1* .

lun copy start

Start copying a LUN from one volume to another within a cluster

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

Description

The `lun copy start` command initiates copying of a LUN from one volume to another. The destination volume can be located in the same Vserver as the source volume (intra-Vserver copy) or in a different Vserver (inter-Vserver).

A cluster administrator must first create a Vserver peering relationship using vserver peer create before initiating an inter-Vserver LUN copy operation.

Parameters

`-vserver <Vserver Name>` - Destination Vserver Name

Specifies the name of the Vserver that will host the new LUN.

| `-destination-path <path>` - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

`-source-path <path>` - Source Path }

Specifies the full path to the source LUN, in the format /vol/<volume>[/.snapshot/<snapshot>][/<qtree>]/<lun>.

[-source-vserver <vserver name>] - Source Vserver Name

Optionally specifies the name of the Vserver hosting the LUN to be copied.

If this parameter is not specified, it is assumed that an intra-Vserver copy operation is being initiated. The source volume is expected to be in the same Vserver as the destination volume.

[-promote-early <true>] - Promote Early

Optionally specifies that the destination LUN needs to be promoted early.

If the destination is promoted early, the new LUN will be visible immediately. However, Snapshot copies of the volume containing the new LUN cannot be taken until the LUN copy operation reaches 'Moving Data' status.

If the destination is promoted late, the new LUN will be visible only after it has been fully framed. However, the LUN copy job will not block the creation of Snapshot copies of the volume containing the new LUN.

If this parameter is not specified, the destination LUN will be promoted late.

[-max-throughput {<integer>[KB|MB|GB|TB|PB]}] - Maximum Transfer Rate (per sec)

Optionally specifies the maximum amount of data, in bytes, that can be transferred per second in support of this operation. This mechanism can be used to throttle a transfer, to reduce its impact on the performance of the source and destination nodes.

If this parameter is not specified, throttling is not applied to the data transfer.

The specified value will be rounded up to the nearest megabyte.

Examples

```
cluster1::> lun copy start -vserver vs2 -destination-path /vol/vol2/lun2
-source-vserver vs1 -source-path /vol/vol1/lun1
```

Starts an inter-Vserver copy of LUN *lun1* from volume *vol1* in Vserver *vs1* to *lun2* on volume *vol2* in Vserver *vs2* .

```
cluster1::> lun copy start -vserver vs1 -destination-path /vol/vol2/lun2
-source-path /vol/vol1/lun1
```

Starts an intra-Vserver copy of LUN *lun1* from volume *vol1* in Vserver *vs1* to *lun2* on volume *vol2* in Vserver *vs1* .

```
cluster1::> lun copy start -vserver vs1 -destination-path /vol/vol2/lun2
-source-path /vol/vol1/.snapshot/snap1/lun1
```

Starts an intra-Vserver copy of LUN *lun1* from Snapshot copy *snap1* of volume *vol1* in Vserver *vs1* to *lun2* on volume *vol2* in Vserver *vs1* .

Related Links

- vserver peer create

lun igroup commands

lun igroup add

Add initiators to an initiator group

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

Description

This command adds initiators to an existing initiator group (igroup). You can add an initiator to an initiator group only if there are no LUN mapping conflicts. Mapping conflicts occur when an initiator is already paired with a LUN. If you attempt to run this command and there are LUN mapping conflicts, the command returns an error.

An initiator cannot be a member of two igroups of different OS types. For example, if you have an initiator that belongs to a Solaris igroup, the command does not allow you to add this initiator to an AIX igroup.

When you add FCP initiators, you can specify an alias instead of the initiator's World Wide Port Name (WWPN) or the iSCSI Qualified name (IQN).

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the initiator group to which you want to add a new initiator.

`-initiator <text>,…` - Initiators

Specifies the initiator that you want to add. You can specify the WWPN, IQN, or alias of the initiator.

Examples

```
cluster1::> lun igroup add -vserver vs1 -igroup ig1 -initiator iqn.1992-
08.com.mv.mvinitiator
```

Adds the initiator iqn.1992-08.com.mv.mvinitiator to the initiator group ig1 on Vserver vs1.

lun igroup bind

Bind an existing initiator group to a given portset

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

Description

This command binds an initiator group to a port set so the host knows which LIFs or TPGs to access. When you bind a port set to an igroup, the host knows which iSCSI or FCP LIF to access. If you do not bind an igroup to a port set, and you map a LUN to the igroup, then the initiators in the igroup can access the LUN on any port on the Vserver.

The initiator group cannot be bound to another port set when you use this command. If you attempt to bind a port set to an initiator group that is already bound to an existing port set, the command returns an error. You can only bind an initiator group to one port set at a time.

If the initiator group is bound, use the lun igroup unbind command to unbind the initiator group from the port set. After the initiator group is unbound, you can bind it to another port set.

You can only bind an initiator group to a non-empty port set.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the initiator group that you want to bind a port set to.

`-portset <text>` - Portset Binding Igroup

Specifies the port set name that you want to bind an initiator group to.

Examples

```
cluster1::> lun igroup bind -vserver vs1 -igroup ig1 -portset-name ps1
```

Binds igroup ig1 to port set ps1.

Related Links

- lun igroup unbind

lun igroup create

Create a new initiator group

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

Description

This command creates a new initiator group (igroup). Use igroups to control which hosts have access to specific LUNs. When you bind an igroup to a port set, a host in the igroup can access the LUNs only by connecting to the target ports in the port set.

When you create an igroup, you can add multiple existing initiators by specifying them in a list, separating them with commas. Later, you can add or remove initiators from the initiator group. Use the lun igroup add command

to add initiators. Use the lun igroup remove command to remove an initiator. Unless the `-initiator` option is supplied, no initiators are added to a new igroup.

You can also bind a port set to an initiator when you create an initiator group. You can modify the port set binding of an initiator group by using the lun igroup bind command or the lun igroup unbind command.

The name you assign to an igroup is independent of the name of the host that is used by the host operating system, host files, or Domain Name Service (DNS). If you name an igroup aix1, for example, it is not mapped to the actual IP host name (DNS name) of the host.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the name of the new initiator group. An initiator group name is a case-sensitive name that must contain one to 96 characters. Spaces are not allowed.

It might be useful to provide meaningful names for igroups, ones that describe the hosts that can access the LUNs mapped to them.

{ `[-protocol <protocol_enum>]` - Protocol

Specifies if the initiator group protocol is *`fcp`* , *`iscsi`* , or *`mixed`* .

| `[-f, -fcp <true>]` - FCP

Specifies FCP as the protocol type of the new igroup.

| `[-i, -iscsi <true>]` - iSCSI }

Specifies iSCSI as the protocol type of the new igroup.

`-t, -ostype <Initiator Group OS Type>` - OS Type

Specifies the operating system type for the new initiator group. The operating system type indicates the type of host operating system used by all of the initiators in the igroup. All initiators in an igroup must be of the same operating system type. The operating system types of initiators are

- solaris
- windows
- hpux
- aix
- linux
- netware
- vmware
- openvms
- xen
- hyper_v

[-a, -portset <text>] - Portset Binding Igroup

Specifies that a port set is bound to the initiator.

-initiator <text>,... - Initiators

Specifies the initiators that are attached to the new initiator group. By default, no initiators are added to the new igroup.

Examples

```
cluster1::> lun igroup create -vserver vs1 -igroup ig1 -protocol mixed
-ostype linux -initiator iqn.2001-04.com.example:abc123
```

Creates initiator group *ig1* on Vserver *vs1* with a *mixed* protocol type on a Linux operating system with the initiator *iqn.2001-04.com.example:abc123*.

Related Links

- lun igroup add
- lun igroup remove
- lun igroup bind
- lun igroup unbind

lun igroup delete

Delete an initiator group

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

Description

This command deletes an existing initiator group. By default, you cannot delete an initiator group if LUN maps for that initiator group exist. You need to unmap all the LUNs that are associated with that initiator group before you can delete the initiator group. Use the lun unmap command to remove LUNS from an initiator group.

You can specify the `force` option to delete an initiator group and remove existing LUN maps defined for that initiator group.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

-igroup <text> - Igroup Name

Specifies the initiator group that you want to delete.

[-f, -force <true>] - Force

Deletes an initiator group and all associated LUN maps.

Examples

```
cluster1::> lun igroup delete -vserver vs1 -igroup ig1
```

Deletes the initiator group ig1 on Vserver vs1.

Related Links

- lun unmap

lun igroup disable-aix-support

Disables SAN AIX support on the cluster

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

Description

This command disables the SAN AIX support across the cluster (all Vservers and all AIX initiator groups). However, before you can disable SAN AIX support, you must remove all SAN AIX related objects from the cluster. You need to unmap all the LUNs that are associated with the AIX initiator groups. Then you need to delete all of the AIX initiator groups. Use the lun unmap command to remove LUNS from an initiator group. Use the `igroup delete` command to delete an initiator group.

This command is not intended to be used in normal operation. Use only when you are downgrading to a release that does not support SAN AIX operation.

Examples

```
cluster1::> lun igroup disable-aix-support
```

Disables the SAN AIX support for cluster1.

Related Links

- lun unmap

lun igroup modify

Modify an existing initiator group

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

Description

This command modifies an attribute for an initiator group. Currently, the only settable attribute is the operating system.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the initiator group whose attribute you want to modify.

`[-t, -ostype <Initiator Group OS Type>]` - OS Type

Specifies the operating system that you want to modify. The operating system types of initiators are

- solaris
- windows
- hpux
- aix
- linux
- netware
- vmware
- openvms
- xen
- hyper_v

`[-delete-on-unmap {true|false}]` - Delete on Last Unmap

Specifies if this initiator group will be deleted automatically when no longer used in a LUN mapping relationship.

Examples

```
cluster1::> lun igroup modify -vserver vs1 -igroup ig1 -ostype windows
```

Changes the operating system to *`windows`* for initiator group *`ig1`* on Vserver *`vs1`* .

lun igroup remove

Remove initiators from an initiator group

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

Description

This command removes an initiator from an initiator group. You can only remove an initiator if no existing LUN maps are defined for that initiator group. You must unmap the LUNs from the initiator group with the lun unmap command before you can remove initiators from the initiator group.

You can use the `force` option to remove an initiator and associated LUN maps.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the initiator group from which you want to remove an initiator.

`-initiator <text>,…` - Initiators

Specifies the initiator name you want to remove. Use the WWPN, IQN or the alias of the initiator.

`[-f, -force <true>]` - Force

Forcibly removes an initiator and any associated LUN maps.

Examples

```
cluster1::> lun igroup remove -vserver vs1 -igroup ig1 -initiator
iqn.1992-08.com.mv.mvinitiator
```

Removes the initiator iqn.1992-08.com.mv.mvinitiator from Vserver vs1 and initiator group ig1.

Related Links

- lun unmap

lun igroup rename

Rename an existing initiator group

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

Description

This command renames an existing initiator group. When you rename an initiator group, this action does not affect access to the LUNs mapped to the initiator group you want to rename.

An initiator group name is a case-sensitive name and must meet the following requirements:

- Must contain one to 96 characters. Spaces are not allowed.
- Can contain the letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), colon (:), and period (.).
- Must start with a letter or number.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

-igroup <text> - Igroup Name

Specifies the initiator group you want to rename.

-new-name <text> - New Igroup Name

Specifies the new name of the initiator group.

Examples

```
cluster1::> lun igroup rename -vserver vs1 -igroup ig1 -new-name ignew1
```

Renames an initiator group from ig1 to ignew1 on Vserver vs1.

lun igroup show

Display a list of initiator groups

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

Description

This command displays status information for initiator groups (igroup). By default, the command displays status for all initiator groups.

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 Name

Specifies the Vserver.

[-igroup <text>] - Igroup Name

Selects the initiator groups that match this parameter value.

[-protocol <protocol_enum>] - Protocol

Selects the initiator groups that match this parameter value (`FCP` , `iSCSI` , or `mixed`).

[-t, -ostype <Initiator Group OS Type>] - OS Type

Selects the initiator groups that match this parameter value. The operating system types are

- `solaris`
- `windows`
- `hpux`

- aix
- linux
- netware
- vmware
- openvms
- xen
- hyper_v

[-a, -portset <text>] - Portset Binding Igroup

Selects the initiator groups that match this parameter value.

[-initiator <text>,…] - Initiators

Selects the initiator groups that match this parameter value.

[-uuid <UUID>] - Igroup UUID

Selects the initiator groups that match this parameter value.

[-delete-on-unmap {true|false}] - Delete on Last Unmap

Selects the initiator groups that match this parameter value. A value of `true` displays all the initiator groups that will be deleted automatically when they are no longer used in a LUN mapping relationship.

Examples

```
cluster1::> igroup show -instance
          Vserver Name: vs0
           Igroup Name: ig1
              Protocol: mixed
               OS Type: linux
Portset Binding Igroup: -
           Igroup UUID: 358338ba-cfd6-11df-a9ab-123478563412
            Initiators: iqn.1992-08.com.mv:abc (not logged in)
Vserver Name: vs0
           Igroup Name: ig2
              Protocol: mixed
               OS Type: linux
Portset Binding Igroup: -
           Igroup UUID: 3fb136c7-cfd6-11df-a9ab-123478563412
            Initiators: -
Vserver Name: vs1
           Igroup Name: ig1
              Protocol: mixed
               OS Type: windows
Portset Binding Igroup: p1
           Igroup UUID: 03accf6b-d08c-11df-a9ab-123478563412
            Initiators: -
3 entries were displayed.
```

The example above displays information about all initiator groups.

lun igroup unbind

Unbind an existing initiator group from a portset

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

Description

This command unbinds an initiator group from a port set. When you unbind an initiator group from a port set, all of the initiators in the initiator group have access to all target LUNs on all network interfaces.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-igroup <text>` - Igroup Name

Specifies the initiator group that you want to unbind from the port set.

Examples

```
cluster1::> lun igroup unbind -vserver vs1 -igroup ig1
```

Unbinds the initiator group ig1 from the port set on Vserver vs1.

lun import commands

lun import create

Create an import relationship

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

Description

This command creates an import relationship between a specified LUN and a specified foreign disk so you can import the foreign disk data into a LUN.

The foreign disk must be marked as foreign using storage disk set-foreign-lun command before you can begin the import progress.

The LUN must be of the same size as the foreign disk.

Parameters

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

Specifies the Vserver that contains the LUN where you import data to from the foreign disk data.

`-foreign-disk <text>` - Foreign Disk Serial Number (privilege: advanced)

Specifies the serial number of the Foreign Disk.

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

Specifies the path of the LUN where you want to import the data of the foreign disk to. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import create -vserver vs1 -path /vol/dvol1/lun1 -foreign
-disk 6000B5D0006A0000006A020E00040000
```

Creates an import relationship between lun1 at the path /vol/dvol1/lun1 and foreign disk with serial number 6000B5D0006A0000006A020E00040000.

Related Links

- storage disk set-foreign-lun

lun import delete

Deletes the import relationship of the specified LUN or the specified foreign disk

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

Description

This command deletes the import relationship of a specified LUN or a specified foreign disk.

You cannot use this command if an import is in-progress between the foreign disk and the LUN unless you use the force option. The import has to either successfully completed or be stopped before deleting the import relationship.

You can use the lun import stop command to stop the data import, and then you delete the import relationship.

Parameters

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

Specifies the Vserver that contains the LUN that you want to delete the import relationship.

-path <path> - LUN Path (privilege: advanced)

Specifies the path of the LUN where you want to delete the import relationship. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -foreign-disk <text> - Foreign Disk Serial Number (privilege: advanced) }

Specifies the serial number of the foreign disk.

[-force {true|false}] - Force Delete (privilege: advanced)

When set to true, stops the in progress data import.

Examples

```
cluster1::> lun import delete -vserver vs1 -path /vol/vol2/lun2
```

Deletes the import relationship of lun2 at the path /vol/vol2/lun2.

```
cluster1::> lun import delete -vserver vs0 -foreign-disk
6000B5D0006A0000006A020E00040000
```

Deletes the import relationship of the foreign disk with serial number 6000B5D0006A0000006A020E00040000.

Related Links

- lun import stop

lun import pause

Pause the import for the specified LUN

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

Description

This command pauses the data import to a specified LUN.

This command does not reset all import checkpoints. To resume a paused import, use the lun import resume command to retart from the last checkpoint taken before you paused the data import.

If you want to resume the data import from the beginning, use the lun import stop command. Then use the lun import start command.

Parameters

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

Specifies the Vserver that contains the LUN you want to pause the data import to.

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

Specifies the path of the LUN you want to pause the data import to. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import pause -vserver vs1 -path /vol/vol2/lun2
```

Pauses the data import for lun2 at the path /vol/vol2/lun2

lun import prepare-to-downgrade

Prepares LUN import to be downgraded

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

Description

This command prepares the cluster for a downgrade to a version of Data ONTAP earlier than 8.3.1 by disabling the online LUN import feature. Before using this command verify that all LUNs in an import relationships are offline by running lun show .

Examples

```
cluster1::> lun import prepare-to-downgrade
```

The above example will disable the online LUN import feature if all LUNs in import relationships are offline

Related Links

- lun show

lun import resume

Resume the import for the specified LUN

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

Description

Resumes the data import to a specified LUN.

The import starts from the last checkpoint taken before you paused the data import.

If you want to resume the data import from the beginning, use the lun import stop command. Then use the lun import start command.

Parameters

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

Specifies the Vserver that contains the LUN you want to resume the data import to.

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

Specifies the path of the LUN that you want to resume the data import to. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import resume -vserver vs1 -path /vol/vol2/lun2
```

Resumes the data import to lun2 at the path /vol/vol2/lun2

lun import show

Display a list of import relationships

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

Description

This command displays information about the import relationships.

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 Name (privilege: advanced)

Displays import relationships for a specified Vserver.

[-foreign-disk <text>] - Foreign Disk Serial Number (privilege: advanced)

Enables you to see the import relationship for a particular foreign disk with the specified serial number.

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

Enables you to see the import relationship for a particular LUN path. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

[-import-home-node {<nodename>|local}] - Import Home Node (privilege: advanced)

Enables you to see the node that initially started the data import and where the I/O for the foreign disk is directed. If failover occurs, any in-progress data import restarts on the partner node.

[-import-current-node {<nodename>|local}] - Import Current Node (privilege: advanced)

Displays the node that is currently importing data and where the I/O for the foreign disk is directed. During giveback and if the import home node is different from the current home node , import restarts on the initial node (import-home-node).

[-operation-in-progress {import|verify}] - Operation in Progress (privilege: advanced)

Enables you to see the imports in progress or import verification in progress.

[-admin-state {stopped|started|paused}] - Admin State (privilege: advanced)

Enables you to see the import relationships for a specified administrative state. For example, you can list all the imports that have started in a cluster.

[-operational-state {in_progress|failed|completed|stopped|paused}] - Operational State (privilege: advanced)

Enables you to see the import relationships for a specified operational state. For example, you can list all the imports that have completed in a cluster.

[-percent-complete <integer>] - Percent Complete (privilege: advanced)

Enables you to see the percentage of completion for both import and verification. If you want to see all the complete imports and verifications, you would specify 100.

[-imported-blocks <integer>] - Blocks Imported (privilege: advanced)

Enables you to see the number of blocks that have been imported to the LUN.

[-compared-blocks <integer>] - Blocks Compared (privilege: advanced)

Enables you to see the number of LUN and foreign disk blocks that have been compared.

[-total-blocks <integer>] - Total Blocks (privilege: advanced)

Enables you to see the total number of blocks that must be imported to complete the data import to a LUN or the number of blocks that must be compared to complete the import verification.

[-estimated-remaining-duration {<seconds>|[<d> days] <hh>:<mm>[:<ss>]}] - Estimated Remaining Duration (privilege: advanced)

If this parameter is specified, the command displays import or verify operations that match the specified time.

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

Selects LUN import operations that match this parameter value.

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

Selects the LUN import operations that match this parameter value. This value is the throughput limit at which an import or verify will be throttled. By default, there is no throttling.

[-current-throughput {<integer>[KB|MB|GB|TB|PB]}] - Current Throughput (per sec) (privilege: advanced)

Selects the LUN import operations that match this parameter value. This value is the current throughput for an in-progress import or verify operation.

[-qos-policy-group <text>] - QoS Policy Group (privilege: advanced)

Selects the LUN import operations that match this parameter value. This value is the QoS policy group associated with an import relationship.

Examples

```
cluster1::> lun import show
vserver           foreign-disk                       path
operation-in-progress   admin-state  operational-state  percent-complete
 ------------------------------------------------------------------------
------------------------------------------------------------------------
-
vs1               6000B5D0006A0000006A020E00040000  /vol/dvol1/lun1
import                 stopped      stopped            0
vs1               600604803436313364333365383665 37  /vol/vol1/lun1
import                 started      failed            11
vs2               6000B5D0006A0000006A020E00040001  /vol/dvol1/lun2
verify                 started      in_progress        5
```

Display information about all import relationships in the cluster

```
cluster1::> lun import show -instance
                     Vserver Name: vs1
                         LUN Path: /vol/dvol1/lun1
        Foreign Disk Serial Number: 6000B5D0006A0000006A020E00040000
                   Import Home Node: cluster1-01
                 Current Import Node: cluster1-01
              Operation in Progress: import
                        Admin State: started
```

```
                 Operational State: in-progress
                  Percent Complete: 0%
                   Blocks Imported: 0
                   Blocks Compared: 0
             Total Blocks to Import: 10000000
      Estimated Remaining Duration: 00:01:23
                    Failure Reason: -
Maximum Throughput Limit (per sec): -
      Current Throughput (per sec): -
                  QoS Policy Group: -
Vserver Name: vs2
                           LUN Path: /vol/dvol1/lun2
        Foreign Disk Serial Number: 6000B5D0006A0000006A020E00040001
                  Import Home Node: cluster1-01
               Current Import Node: cluster1-01
             Operation in Progress: verify
                       Admin State: started
                 Operational State: in-progress
                  Percent Complete: 5%
                   Blocks Imported: 10000000
                   Blocks Compared: 500000
             Total Blocks to Import: 10000000
      Estimated Remaining Duration: 00:00:59
                    Failure Reason: -
Maximum Throughput Limit (per sec): 2MB
      Current Throughput (per sec): 1.29MB
                  QoS Policy Group: fli_pg_cf2b638b-606b-11e4-ae4c-
000c290d40ff
Vserver Name: vs1
        Foreign Disk Serial Number: 600604803436313364333365383665 37
                           LUN Path: /vol/vol1/lun1
                  Import Home Node: cluster1-01
               Current Import Node: cluster1-01
             Operation in Progress: import
                       Admin State: started
                 Operational State: failed
                  Percent Complete: 11
                   Blocks Imported: 932352
                   Blocks Compared: -
                      Total Blocks: 8388608
      Estimated Remaining Duration: -
                    Failure Reason: Source read error - reservation
conflict.
Maximum Throughput Limit (per sec): 12MB
      Current Throughput (per sec): -
                  QoS Policy Group: fli_pg_f6632344-60e7-11e4-9bad-
```

```
000c290d40ff
```

Display detailed information about all import relationships in the cluster.

```
cluster1::> lun import show -vserver vs1
vserver   path                  foreign-disk                       admin-
state  operational-state  percent-complete
 ------------------------------------------------------------------------
----------------------------------------
vs1       /vol/dvol1/lun1       vgv3040f46a:vgbr300s70:9.126L1    stop
-                 0%
```

Display information about the LUNs in an import relationships in a specific vserver.

```
cluster1::> lun import show -admin-state start
vserver   path                  foreign-disk                       admin-
state  operational-state  percent-complete
 ------------------------------------------------------------------------
----------------------------------------
vs2       /vol/dvol1/lun2       vgv3040f46a:vgbr300s70:9.126L2    start
in-progress        5%
```

Display active LUN import sessions in a cluster.

lun import start

Start the import for the specified LUN

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

Description

This command initiates the data import to a specified LUN.

You must use the lun import create command to create an import relationship between a LUN and a foreign disk before you can initiate the data import.

Parameters

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

Specifies the Vserver that contains the LUN you want to import data to.

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

Specifies the path of the LUN that you want to import data to. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import start -vserver vs1 -path /vol/vol2/lun2
```

Starts the data import to lun2 at the path /vol/vol2/lun2.

lun import stop

Stop the import for the specified LUN

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

Description

This command stops the data import into a specified LUN.

After you stop the data import and if you start the import again using lun import start command, then the import restarts from the beginning.

Parameters

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

Specifies the Vserver that contains the LUN you want to stop importing data to.

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

Specifies the path of the LUN that you want to stop the data import to.

Examples

```
cluster1::> lun import stop -vserver vs1 -path /vol/vol2/lun2
```

Stops data import to lun2 at the path /vol/vol2/lun2

Related Links

- lun import start

lun import throttle

Modify the max throughput limit for the specified import relationship

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

Description

This command throttles the speed of the import for a given LUN by specifying a maximum throughput limit on the import.

Parameters

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

Specifies the Vserver that contains the LUN to which data from the foreign disk is imported.

-path <path> - LUN Path (privilege: advanced)

Specifies the path of the LUN to which data from the foreign disk is imported. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

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

Specifies the maximum amount of throughput to be allocated for processing import requests on the bound LUN. At the time of creation, the default is zero. A value of zero implies that import traffic is processed by the system at best effort rate along with on-going user I/O. A non-zero value indicates that import will be throttled at a rate which is at most the maximum throughput limit set.

Examples

```
cluster1::*> lun import throttle -vserver vs1 -path /vol/vol1/lun1 -max
-throughput-limit 3M
```

The above example limits the import speed for the bound LUN with path /vol/vol1/lun1 to a maximum of 3MB/s.

lun import verify start

Start the verification of the foreign disk and LUN data

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

Description

This command compares the LUN and the foreign disk block by block. You are not required to run this command; it is optional. Before you can do this verification process, the operation state must be stopped or completed. Use the lun import show command to determine the operation state.

If a block mismatch occurs, the verification process stops.

Verification must be done offline. Ensure the foreign disk and LUN cannot be accessed by a host. To prevent access of the LUN, the LUN should be taken offline administratively using the lun offline command.

Note: The specified LUN must be in an import relationship with a foreign disk before you can verify the data import.

Parameters

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

Specifies the Vserver that contains the LUN you want to compare block by block with the foreign disk.

-path <path> - LUN Path (privilege: advanced)

Specifies the path of the LUN that you want to compare the foreign disk to. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import verify start -vserver vs1 -path /vol/vol2/lun2
```

Starts the import verification on lun2 at path /vol/vol2/lun2.

lun import verify stop

Stop the verify for the specified LUN

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

Description

This command stops the block by block verification of the foreign disk and LUN data.

Parameters

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

Specifies the Vserver that contains the LUN you want to stop block by block comparison with the foreign disk.

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

Specifies the path of the LUN that you want to stop the block by block comparison. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

Examples

```
cluster1::> lun import verify stop -vserver vs1 -path /vol/vol2/lun2
```

Stops the import verify on lun at path /vol/vol2/lun2.

lun mapping commands

lun mapping add-reporting-nodes

Add Reporting Nodes

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

Description

This command is used before or after a data mobility event that modifies the owning node of the LUN to add the new optimized nodes to the specified LUN mapping's reporting nodes.

For more information on managing reporting nodes in response to data mobility events, please see the Data ONTAP SAN Administration Guide.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver containing the LUN.

{ -path <path> - LUN Path

Specifies the path of the LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume that contains the LUN.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree that contains the LUN.

-lun <text> - LUN Name }

Specifies the LUN name.

-g, -igroup <text> - Igroup Name

Specifies the igroup the LUN is mapped to.

{ -local-nodes <true> - Add Nodes for Current LUN Location

Add the current LUN owner node and HA partner to the LUN mapping's reporting nodes.

This option should be used after a LUN mobility event to restore optimized access to the LUN.

| -destination-aggregate <aggregate name> - Add Nodes for Aggregate

Add the specified aggregate's owner node and HA partner to the LUN mapping's reporting nodes.

This option may be used prior to a LUN mobility event that changes the LUN's containing aggregate.

| -destination-volume <volume name> - Add Nodes for Volume }

Add the specified volume's owner node and HA partner to the LUN mapping's reporting nodes.

This option may be used prior to a LUN mobility event that changes the LUN's containing volume.

| -all <true> - Add All Nodes (privilege: advanced) }

Set the LUN mapping to report on all nodes in preparation for a revert to a previous version of Data ONTAP.

Examples

```
cluster1::> lun mapping add-reporting-nodes -vserver vs1 -path
/vol/vol1/lun1 -igroup ig1
```

Add the current owner node and HA partner for the LUN mapping of */vol/vol1/lun1* to igroup *ig1*

```
cluster1::> lun mapping add-reporting-nodes -vserver vs1 -volume vol1 -lun
* -igroup ig1 -destination-aggregate aggr2
```

Add the aggregate owner node and HA partner for aggregate *aggr2* to all LUN mappings in volume *vol1* to igroup *ig1* prior to starting a volume move operation.

lun mapping create

Map a LUN to an initiator group

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

Description

This command maps a LUN to all of the initiators in an initiator group (igroup). After you map the LUN, the LUN is visible to all initiators in the igroup.

Data ONTAP ensures that there are no LUN map conflicts whether the LUN is offline or online. A LUN map conflict is a mapping that would violate either of the following rules:

- Each LUN can be mapped to an initiator only once. A LUN can be mapped to multiple igroups as long as each igroup has a distinct set of initiators.
- LUN IDs must be unique such that every initiator has a unique ID for each LUN to which it is mapped. If you map a LUN to an igroup, the LUN ID for that mapping cannot be reused by any of the initiators in that igroup.

In order to determine if a LUN ID is valid for a mapping, Data ONTAP checks each initiator in the igroup to make sure that the LUN ID is not used for another mapping that includes that initiator.

Prior to mapping a LUN, you must have at least one iSCSI or FCP LIF provisioned on the LUN's owner node and high-availability partner node.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver that contains the LUN you want to map.

{ -path <path> - LUN Path

Specifies the path of the LUN that you want to map. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume that contains the LUN you want to map.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree that contains the LUN you want to map.

-lun <text> - LUN Name }

Specifies the LUN name that you want to map.

-g, -igroup <text> - Igroup Name

Specifies the igroup that you want to map.

[-lun-id <integer>] - LUN ID

Specifies the LUN ID for the mapping. The LUN ID is specific to the mapping, not to the LUN itself. This is used by the initiators in the igroup as the Logical Unit Number for the initiator when accessing the storage.

[-additional-reporting-node <nodename>] - Additional Reporting Node (privilege: advanced)

Specifies an additional node to populate the `-reporting-nodes` list when creating the LUN mapping. The specified node's high availability partner will be automatically populated as well. Use this parameter when preferred data mobility destinations are known ahead of time and the appropriate paths can be pre-configured.

Examples

```
cluster1::> lun mapping create -vserver vs1 -path /vol/vol1/lun1 -igroup
ig1 -lun-id 8
```

Maps a LUN at /vol/vol1/lun1 on Vserver vs1 to the igroup ig1 with LUN ID 8.

lun mapping delete

Unmap a LUN from an initiator group

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

Description

This command unmaps a LUN from an initiator group. After you use this command, the LUN is not visible to any of the initiators in the initiator group.

Parameters

-vserver <Vserver Name> - Vserver Name

Selects the LUN maps for the Vserver that matches the parameter value.

{ -path <path> - LUN Path

Specifies the path of the LUN you want to unmap. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume of the LUN you want to unmap.

-qtree <qtree name> - Qtree Name

Specifies the qtree of the LUN you want to unmap.

-lun <text> - LUN Name }

Specifies the name of the LUN you want to unmap.

-g, -igroup <text> - Igroup Name

Specifies the initiator group that you want to unmap the LUN from.

Examples

```
cluster1::> lun mapping delete -vserver vs1 -path /vol/vol1/lun1 -igroup
ig1
```

Unmaps LUN at path /vol/vol1/lun1 from the initiator group ig1 on Vserver vs1.

lun mapping remove-reporting-nodes

Remove Reporting Nodes

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

Description

This command is used after a data mobility event to remove reporting nodes that are no longer required for optimized access from the specified LUN mapping.

For more information on managing reporting nodes in response to data mobility events, please see the Data ONTAP SAN Administration Guide.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver containing the LUN.

{ -path <path> - LUN Path

Specifies the path of the LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

| -volume <volume name> - Volume Name

Specifies the volume that contains the LUN.

[-qtree <qtree name>] - Qtree Name

Specifies the qtree that contains the LUN.

-lun <text> - LUN Name }

Specifies the LUN name.

-g, -igroup <text> - Igroup Name

Specifies the igroup the LUN is mapped to.

-remote-nodes <true> - Remove Remote Nodes for LUN Location

If specified, remove all nodes other than the LUN's owner and HA partner from the LUN mapping's reporting nodes.

Examples

```
cluster1::> lun mapping remove-reporting-nodes -vserver vs1 -path
/vol/vol1/lun1 -igroup ig1
```

Remove excess remote nodes from the LUN mapping of */vol/vol1/lun1* to igroup *ig1*

lun mapping show-initiator

Show the LUN mappings to a specific initiator

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

Description

The `lun mapping show-initiator` command lists the LUNs which are mapped to an initiator group which contains a specific initiator.

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 Name (privilege: advanced)

Selects the LUN mappings for the vserver that you specify.

-initiator <text> - Initiator Name (privilege: advanced)

Selects the LUN mappings for the initiator that you specify.

[-lun-id <integer>] - Logical Unit Number (privilege: advanced)

Selects the LUN mappings with a LUN ID that you specify.

[-igroup <text>] - Igroup Name (privilege: advanced)

Selects the LUN mappings for the initiator group that you specify.

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

Selects the LUN mappings for the LUN path that you specify.

[-node <nodename>] - LUN Node (privilege: advanced)

Selects the LUN mappings for the LUNs which are being hosted on the node that you specify.

[-reporting-nodes <nodename>,…] - Reporting Nodes (privilege: advanced)

Selects the LUN mappings for the LUNs which have reporting nodes that you specify.

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

Selects the LUN mappings for the Vserver UUID that you specify.

[-igroup-uuid <UUID>] - Igroup UUID (privilege: advanced)

Selects the LUN mappings for the initiator group UUID that you specify.

[-lun-uuid <UUID>] - LUN UUID (privilege: advanced)

Selects the LUN mappings for the LUN UUID that you specify.

Examples

The following example displays the LUN mappings for initiator *20:10:0a:50:00:01:01:01* in Vserver *vs1* .

```
cluster1::> lun mapping show-initiator -vserver vs1 -initiator
20:10:0a:50:00:01:01:01
Vserver Initiator LUN ID Path                                IGroup
------- --------- ------ ----------------------------------
----------------
vs1     20:10:0a:50:00:01:01:01
                        0 /vol/igroup_1_1_vol/lun1           igroup_1
                        2 /vol/igroup_1_1_vol/lun3           igroup_1
                        3 /vol/igroup_1_2_vol/lun1           igroup_1
                        5 /vol/igroup_1_2_vol/lun3           igroup_1
                        6 /vol/igroup_1_3_vol/lun1           igroup_1
                        8 /vol/igroup_1_3_vol/lun3           igroup_1
                        9 /vol/igroup_1_4_vol/lun1           igroup_1
                       11 /vol/igroup_1_4_vol/lun3           igroup_1
                       12 /vol/igroup_2_1_vol/lun1           igroup_2
                       14 /vol/igroup_2_1_vol/lun3           igroup_2
                       15 /vol/igroup_2_2_vol/lun1           igroup_2
                       17 /vol/igroup_2_2_vol/lun3           igroup_2
                       18 /vol/igroup_2_3_vol/lun1           igroup_2
                       20 /vol/igroup_2_3_vol/lun3           igroup_2
                       21 /vol/igroup_2_4_vol/lun1           igroup_2
                       23 /vol/igroup_2_4_vol/lun3           igroup_2
16 entries were displayed.
```

lun mapping show

Lists the mappings between LUNs and initiator groups.

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

Description

This command lists the mappings between LUNs and initiator groups.

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 Name

Selects the LUN maps for the Vserver that matches the parameter value.

{ [-path <path>] - LUN Path

Selects the LUN maps for the LUN with the path that matches the parameter value. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

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

Selects the LUN maps for the volumes that match the parameter value.

[-qtree <qtree name>] - Qtree Name

Selects the LUN maps for the queue trees that match the parameter value.

[-lun <text>] - LUN Name }

Selects the LUN maps for the LUNs with a name that matches the parameter value.

[-g, -igroup <text>] - Igroup Name

Selects the LUN maps for the igroup that matches the parameter value.

[-ostype <Initiator Group OS Type>] - Igroup OS Type

Selects the LUN maps for the initiator groups with the OS type that matches the parameter value.

[-protocol <protocol_enum>] - Igroup Protocol Type

Selects the LUN maps for initiator groups with a protocol that matches the parameter value. Possible values include FCP, iSCSI, or mixed.

[-lun-id <integer>] - LUN ID

Selects the LUN maps with a LUN ID that matches the parameter value.

[-portset <text>] - Portset Binding Igroup

Selects the LUN maps for initiator groups bound to the portset that matches the parameter value.

[-alua {true|false}] - ALUA

Selects the LUN maps with ALUA settings that match the parameter value.

[-n, -initiators <text>,…] - Initiators

Selects the LUN maps for initiator groups containing the initiators that match the parameter value.

[-node <nodename>] - LUN Node

Selects the LUN maps for nodes that match the parameter value.

[-reporting-nodes <nodename>,…] - Reporting Nodes

Selects the LUN maps that match the parameter value.

Examples

```
cluster1::> lun mapping show
Vserver    Path                                      Igroup   LUN ID
Protocol
---------- ----------------------------------------  -------  ------
--------
vs1        /vol/vol1/lun1                            igroup1      10
mixed
vs1        /vol/vol1/lun1                            igroup2       4
mixed
vs1        /vol/vol5/lun1                            igroup3       6
mixed
vs1        /vol/vol5/lun2                            igroup3       1
mixed
4 entries were displayed.
```

The example above lists all of the mappings between LUNs and initiator groups and the LUN ID for each mapping.

lun move commands

lun move cancel

Cancel a LUN move operation before the new LUN has been created

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

Description

The `lun move cancel` command cancels an ongoing LUN move operation prior to creation of the new LUN. The command fails if the LUN already exists at the destination path; in that case, allow the current move operation to complete and then move it back using the lun move start command.

All data transfers will be halted. If the source LUN was quiesced, it will be restored to normal operation.

This is an advanced command because the preferred way to cancel a LUN move operation is to wait until the new LUN becomes visible, and then move it back.

Parameters

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

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path (privilege: advanced)

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::*> lun move cancel -vserver vs1 -destination-path /vol/vol2/lun2
```

Cancels the move operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

Related Links

- lun move start

lun move modify

Modify an ongoing LUN move operation

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

Description

The `lun move modify` command modifies the maximum throughput of an ongoing move operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name

Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

-max-throughput {<integer>[KB|MB|GB|TB|PB]} - Maximum Transfer Rate (per sec)

Specifies the maximum amount of data, in bytes, that can be transferred per second in support of this operation. This mechanism can be used to throttle a transfer, to reduce its impact on the performance of the source and destination nodes.

The specified value will be rounded up to the nearest megabyte.

Examples

```
cluster1::> lun move modify -vserver vs1 -destination-path /vol/vol2/lun2
-max-throughput 25MB
```

Modifies the maximum throughput for the ongoing move job identified by Vserver *vs1* and destination path */vol/vol2/lun2* to 25 MB/sec.

lun move pause

Pause an ongoing LUN move operation

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

Description

The `lun move pause` command pauses an ongoing move operation. Use the lun move resume command to resume the move operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name
Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path
Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::> lun move pause -vserver vs1 -destination-path /vol/vol2/lun2
```

Pauses the ongoing move operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

Related Links

- lun move resume

lun move resume

Resume a paused LUN move operation

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

Description

The `lun move resume` command resumes a paused move operation.

Parameters

{ -vserver <Vserver Name> - Vserver Name
Specifies the name of the Vserver that will host the destination LUN.

-destination-path <path> - Destination Path
Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

Examples

```
cluster1::> lun move resume -vserver vs1 -destination-path /vol/vol2/lun2
```

Resumes the paused move operation identified by Vserver *vs1* and destination path */vol/vol2/lun2* .

lun move show

Display a list LUNs currently being moved

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

Description

The `lun move show` command shows information about LUNs currently being moved in the cluster.

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 Name

Selects LUN move operations that match this parameter value.

[-destination-path <text>] - Destination Path

Selects LUN move operations that match this parameter value.

[-source-path <path>] - Source Path

Selects LUN move operations that match this parameter value.

[-is-promoted-late {true|false}] - Is Destination Promoted Late

Selects LUN move operations that match this parameter value.

[-max-throughput {<integer>[KB|MB|GB|TB|PB]}] - Maximum Transfer Rate (per sec)

Selects LUN move operations that match this parameter value.

[-job-status {Preparing|Allocation-Map|Data|Destroying|Paused-Admin|Paused-Error|Complete|Destroyed}] - LUN Move Status

Selects LUN move operations that match this parameter value. The possible values are:

- `Preparing` - the LUN move job is in Preparing status.
- `Allocation-Map` - the LUN move job is in Allocating status.
- `Data` - the LUN move job is in Moving Data status.

- `Destroying` - the LUN move job is in Destroying status.
- `Paused-Admin` - the LUN move job is in Paused By Admin status.
- `Paused-Error` - the LUN move job is in Paused By Error status.
- `Complete` - the LUN move job is in Complete status.
- `Destroyed` - the LUN move job is in Destroyed status.

[-progress-percent <percent>] - LUN Move Progress (%)

Selects LUN move operations that match this parameter value.

[-elapsed-time <time_interval>] - Elapsed Time

Selects LUN move operations that match this parameter value.

[-cutover-time <time_interval>] - Cutover Time

Selects LUN move operations that match this parameter value.

[-is-snapshot-fenced {true|false}] - Is Snapshot Fenced

Selects LUN move operations that match this parameter value.

[-is-destination-ready {true|false}] - Is Destination Ready

Selects LUN move operations that match this parameter value.

[-last-failure-reason <text>] - Last Failure Reason

Selects LUN move operations that match this parameter value.

Examples

```
cluster1::> lun move show
Vserver   Destination Path                Status          Progress
--------- ------------------------------ --------------- --------
vs1       /vol/vol2/lun1                 Data            35%
vs1       /vol/vol2/lun2                 Complete        100%
2 entries were displayed.
```

The example above displays information about all the LUN move operations in the cluster.

```
cluster1::> lun move show -vserver vs1 -destination-path /vol/vol2/lun1
-instance
Destination Vserver Name: vs1
               Destination Path: /vol/vol2/lun1
                    Source Path: /vol/vol1/lun1
  Is Destination Promoted Early: false
Maximum Transfer Rate (per sec): 0B
                 LUN Move Status: Data
          LUN Move Progress (%): 35%
                   Elapsed Time: 145s
            Cutover Time (secs): 0s
             Is Snapshot Fenced: true
           Is Destination Ready: true
            Last Failure Reason: -
```

The example above displays all information about the LUN being moved to */vol/vol2/lun1* in Vserver *vs1* .

lun move start

Start moving a LUN from one volume to another within a Vserver

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

Description

The `lun move start` command initiates moving of a LUN from one volume to another. The destination volume can be located on the same node as the original volume or on a different node.

Use lun move-in-volume command if you want to rename the LUN or move it within the same volume.

This command does not support movement of LUNs that are created from files.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the name of the Vserver that will host the new LUN.

| `-destination-path <path>` - Destination Path

Specifies the full path to the new LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

`-source-path <path>` - Source Path }

Specifies the full path to the source LUN, in the format /vol/<volume>[/<qtree>]/<lun>.

`[-promote-late <true>]` - Promote Late

Optionally specifies that the destination LUN needs to be promoted late.

If the destination is promoted early, the new LUN will be visible immediately. However, Snapshot copies of the volume containing the new LUN cannot be taken until the LUN move operation reaches 'Moving Data' status.

If the destination is promoted late, the new LUN will be visible only after it has been fully framed. However, the LUN move job will not block the creation of Snapshot copies of the volume containing the new LUN.

If this parameter is not specified, the destination LUN will be promoted early.

`[-max-throughput {<integer>[KB|MB|GB|TB|PB]}]` - Maximum Transfer Rate (per sec)

Optionally specifies the maximum amount of data, in bytes, that can be transferred per second in support of this operation. This mechanism can be used to throttle a transfer, to reduce its impact on the performance of the source and destination nodes.

If this parameter is not specified, throttling is not applied to the data transfer.

The specified value will be rounded up to the nearest megabyte.

Examples

```
cluster1::> lun move start -vserver vs1 -destination-path /vol/vol2/lun2
-source-path /vol/vol1/lun1
```

Starts moving LUN *lun1* from volume *vol1* in Vserver *vs1* to *lun2* on volume *vol2* in Vserver *vs1* .

Related Links

- lun move-in-volume

lun persistent-reservation commands

lun persistent-reservation clear

Clear the SCSI-3 persistent reservation information for a given LUN

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

Description

Clears the persistent reservation for the specified LUN.

Parameters

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

Specifies the Vserver.

{ `-path <path>` - LUN Path (privilege: advanced)

Specifies the path of the LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

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

Specifies the volume.

-lun <text> - LUN Name (privilege: advanced)

Specifies the name of the LUN.

[-qtree <qtree name>] - Qtree Name (privilege: advanced) }

Specifies the qtree.

Examples

```
cluster1::*> lun persistent-reservation clear -vserver vs_1 -path
/vol/vol_1/lun_1
```

Clears the persistent reservation data for lun lun_1 in volume vol_1 for Vserver vs_1.

lun persistent-reservation show

Display the current reservation information for a given LUN

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

Description

Displays reservation information for a specified LUN in a Vserver. Unlike other show commands, the user must specify the LUN.

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 Name (privilege: advanced)

Specifies the Vserver.

{ -path <path> - LUN Path (privilege: advanced)

Specifies the path of the LUN. Examples of correct LUN paths are */vol/vol1/lun1* and */vol/vol1/qtree1/lun1* .

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

Specifies the volume.

-lun <text> - LUN Name (privilege: advanced)

Specifies the name of the LUN.

[-qtree <qtree name>] - Qtree Name (privilege: advanced) }

Specifies the qtree.

[-scsi-revision {scsi2|scsi3}] - SCSI Revision (privilege: advanced)

Selects the reservations that match this parameter value.

[-entry-type {reservation|registration}] - Reservation or Registration (privilege: advanced)

Selects the reservations that match this parameter value.

[-protocol {fcp|iscsi}] - Protocol (privilege: advanced)

Selects the reservations that match this parameter value.

[-reservation-key <text>] - Reservation Key (privilege: advanced)

Selects the reservations that match this parameter value.

[-reservation-type-code <text>] - Reservation Type (privilege: advanced)

Selects the reservations that match this parameter value. The possible values for SCSI-3 reservations are:

- write exclusive
- exclusive access
- write exclusive registrants only
- exclusive access registrants only
- write exclusive all registrants
- exclusive access all registrants

and for SCSI-2 are:

- regular
- third party

[-initiator-name <text>] - Initiator Name (privilege: advanced)

Selects the reservations that match this parameter value.

[-aptpl {true|false}] - Persist Through Power Loss (privilege: advanced)

Selects the reservations that match this parameter value. If `true` , the reservation will be preserved over a power loss. If `false` , it will not. This value is for SCSI-3 reservations only.

[-target-wwpn <text>] - FCP Target WWPN (privilege: advanced)

Selects the reservations that match the specified World Wide Port Name (WWPN).

[-isid <text>] - Initiator Session ID (privilege: advanced)

Selects the reservations that match this parameter value.

[-tpgroup-tag <integer>] - TPGroup Tag (privilege: advanced)

Selects the reservations that match the specified target portal group tag. The tag identifies the tpgroup the reservation was made over.

[-third-party-initiator-name <text>] - Third Party Initiator Name (privilege: advanced)

Selects the reservations that match this parameter value (the initiator name that the reservation was made for). This is specific to third party reservation types, which is indicated by reservation-type-code.

Examples

```
cluster1::*> lun persistent-reservation show -vserver vs_1
/vol/vol_1/lun_1
     Key                      Protocol Type              Initiator Name
     ------------------------ -------- ----------------
----------------------------
     APTPL: true
     a0:00:00:00:00:00:00:01 iscsi    write exclusive   iqn.1993-
08.org.debian:01:fa752b8a5a3a
     a0:00:00:00:00:00:00:01 iscsi    -                 iqn.1993-
08.org.debian:01:fa752b8a5a3a
     2 entries were displayed.
```

The example above displays the current reservations for lun_1 on Vsever vs_1.

lun portset commands

lun portset add

Add iSCSI/FCP LIFs to a portset

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

Description

This command adds existing iSCSI and FCP LIFs to a port set. To create a new port set, use the lun portset create command.

Use the network interface create command to create new LIFs.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

-portset <text> - Portset Name

Specifies the port set you want to add the LIFs to.

-port-name <port_name>,... - LIF or TPG Name

Specifies the LIF name you want to add to the port set.

Examples

```
cluster1::> portset add -vserver vs1 -portset ps1 -port-name lif1
```

Adds port lif1 to port set ps1 on Vserver vs1.

Related Links

- lun portset create
- network interface create

lun portset create

Creates a new portset

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

Description

This command creates a new port set for FCP and iSCSI. The port set name can include a maximum of 96 characters. You can add LIFs to the new port set. If you do not add a LIF to the port set, you create an empty port set. To add LIFs to an existing port set, use the lun portset add command.

After you create a port set, you must bind the port set to an igroup so the host knows which FC or iSCSI LIFs to access. If you do not bind an igroup to a port set, and you map a LUN to an igroup, then the initiators in the igroup can access the LUN on any LIF on the Vserver.

> You cannot bind an igroup to an empty port set because the initiators in the igroup would have no LIFs to access the LUN.

Parameters

`-vserver <Vserver Name>` - Vserver Name

Specifies the Vserver.

`-portset <text>` - Portset Name

Specifies the name of the new port set. A port set name is a case-sensitive name that must contain one to 96 characters. Spaces are not allowed.

`[-port-name <port_name>,…]` - LIF Or TPG Name

Specifies the name of the logical interface that you want to add to the portset you want to create.

`{ [-protocol {mixed|fcp|iscsi}]` - Protocol

Specifies if the portset protocol type is *`fcp`* , *`iscsi`* , or *`mixed`* . The default is *`mixed`* .

`| [-f, -fcp <true>]` - FCP

Specifies FCP as the protocol type of the new port set.

| [-i, -iscsi <true>] - iSCSI }

Specifies iSCSI as the protocol type of the new port set.

Examples

```
cluster1::> portset create -vserver vs1 -portset ps1 -protocol mixed
```

Creates a port set *ps1* on Vserver *vs1* with the protocol type of *mixed* .

```
cluster1::> portset create -vserver vs1 -portset iscsips -protocol iscsi
```

Creates a port set *iscsips* on Vserver *vs1* with the protocol type of *iscsi* .

```
cluster1::> portset create -vserver vs1 -portset fcppc -protocol fcp
```

Creates a port set *fcppc* on Vserver *vs1* with the protocol type of *fcp* .

```
cluster1::> portset create -vserver vs1 -portset ps2 -protocol mixed -port
-name l11
```

Creates a port set *ps2* on Vserver *vs1* with the protocol type of *mixed* and LIF *l11* .

Related Links

- lun portset add

lun portset delete

Delete the portset

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

Description

This command deletes an existing port set. By default, you cannot delete a port set if it is bound to an initiator group. If a port set is bound to an initiator group, you can do one of the following:

- specify the `force` option to unbind the port set from the initiator group and delete the port set.
- use the lun igroup unbind command to unbind the port set from the initiator group. Then you can delete the port set.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

-portset <text> - Portset Name

Specifies the port set you want to delete.

[-f, -force <true>] - Force

Forcibly unbinds the port set from the initiator group.

Examples

```
cluster1::> portset delete -vserver vs1 -portset ps1
```

Deletes port set ps1 on Vserver vs1.

Related Links

- lun igroup unbind

lun portset remove

Remove iSCSI/FCP LIFs from a portset

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

Description

This command removes a LIF from a port set.

You cannot remove the last LIF in a port set if the port set is bound to an initiator group (igroup). To remove the last LIF in a port set, use the lun igroup unbind command to unbind the port set from the igroup. Then you can remove the last LIF in the port set.

Parameters

-vserver <Vserver Name> - Vserver Name

Specifies the Vserver.

-portset <text> - Portset Name

Specifies the port set you want to remove a LIF from.

-port-name <port_name>,... - LIF or TPG Name

Specifies the LIF name you want to remove from the port set.

Examples

```
cluster1::> port set remove -vserver vs1 -portset ps1 -port-name lif1
```

Removes port lif1 from port set ps1 on Vserver vs1.

Related Links

- lun igroup unbind

lun portset show

Displays a list of portsets

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

Description

This command displays the LIFs in a port set. By default, the command displays all LIFs in all port sets.

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 Name

Selects the port sets that match this parameter value.

[-portset <text>] - Portset Name

Selects the port sets that match this parameter value.

[-port-name <port_name>,…] - LIF Or TPG Name

Selects the port sets that match this parameter value.

[-protocol {mixed|fcp|iscsi}] - Protocol

Selects the port sets that match this parameter value.

[-port-count <integer>] - Number Of Ports

Selects the port sets that match this parameter value.

[-igroups <igroup>,…] - Bound To Igroups

Selects the port sets that match this parameter value.

Examples

```
cluster1::> lun portset show
Vserver   Portset      Protocol Port Names              Igroups
--------- ------------ -------- ----------------------- ------------
vs1       ps0          mixed    lif1, lif2              igroup1
          ps1          iscsi    lif3                    igroup2
          ps2          fcp      lif4                    -
3 entries were displayed.
```

The example above displays all port sets.

```
cluster1::> lun portset show -port-count 0
Vserver   Portset      Protocol Port Names              Igroups
--------- ------------ -------- ----------------------- ------------
vs1       p1           iscsi    -                       -
```

The example above displays the port sets that contain zero LIFs.

```
cluster1::> lun portset show -protocol iscsi
Vserver   Portset      Protocol Port Names              Igroups
--------- ------------ -------- ----------------------- ------------
vs1       p1           iscsi    -                       -
vs1       iscsips      iscsi    lif1                    igroup1
2 entries were displayed.
```

The example above displays the port sets that have the iSCSI protocol.

```
cluster1::> lun portset show -port-name lif1
Vserver   Portset      Protocol Port Names              Igroups
--------- ------------ -------- ----------------------- ------------
vs1       iscsips      iscsi    lif1                    igroup1
```

The example above displays the port sets that contain LIF lif1.

lun transition commands

lun transition show

Display the status of LUN transition processing

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

Description

The `lun transition show` command displays information about the LUN transition processing status of volumes. If no parameters are specified, the command displays the following information about all volumes:

- Vserver name
- Volume name
- Transition status

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 Name (privilege: advanced)

Selects the volumes in the specified Vserver.

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

Selects the volumes with the specified name.

[-status {none|complete|failed|active}] - Transition Status (privilege: advanced)

Selects the volumes that match the specified transition status. The possible status values are:

- *active* - The volume is in an active SnapMirror transition relationship and not yet transitioned.
- *complete* - LUN transition has completed for the volume.
- *failed* - LUN transition has failed for the volume.
- *none* - The volume did not contain LUNs to transition from Data ONTAP 7-Mode.

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

Selects the volumes in the Vserver that matches the specified UUID.

[-node <nodename>] - Filer ID (privilege: advanced)

Selects the volumes that match the specified node.

Examples

The following example displays LUN transition information for all volumes in a Vserver named *vs1* :

```
cluster1::*> lun transition show -vserver vs1
Vserver              Volume             Transition Status
-------------------- ------------------ -----------------
vs1                  vol0               none
                     vol1               complete
                     vol2               failed
                     vol3               active
4 entries were displayed.
```

lun transition start

Start LUN Transition Processing

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

Description

The `lun transition start` command starts LUN transition for the specified volume. Normally, transition is started automatically when snapmirror break is issued for the volume, this command allows restarting in the event automatic transitioning was interrupted or failed.

Parameters

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

The name of the Vserver containing the volume. If only one data Vserver exists, you do not need to specify this parameter.

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

The name of the volume to restart LUN transition.

Examples

The following example starts LUN transition on a volume named *`volume1`* in a Vserver named *`vs1`* :

```
cluster1::*> lun transition start -vserver vs1 -volume volume1
```

Related Links

- snapmirror break

lun transition 7-mode delete

Delete an Untransitioned 7-Mode LUN

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

Description

The `lun transition 7-mode delete` command deletes an untransitioned LUN copied from a Data ONTAP 7-Mode system. This allows the admin to recover space from the volume for LUNs that may not be transitioned to clustered Data ONTAP without distrupting LUNs that have transitioned, for example, if the LUN is an unsupported OS type.

Parameters

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

This specifies the name of the Vserver from which the LUN is to be deleted. If only one data Vserver exists, you do not need to specify this parameter.

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

This specifies the path to the LUN to delete.

Examples

The following example deletes the LUN */vol/vol1/lun1* in a Vserver named *vs1* :

```
cluster1::*> lun transition 7-mode delete -vserver vs1 -path
/vol/vol1/lun1
```

lun transition 7-mode show

Display the 7-Mode LUN Inventory

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

Description

The `lun transition 7-mode show` command displays information about LUNs copied from a Data ONTAP 7-Mode system. If no parameters are specified, the command displays the following information about all 7-Mode LUNs:

- Vserver name
- LUN path
- Operating system type
- Size
- Whether or not the LUN has been transitioned to clustered Data ONTAP

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 Name (privilege: advanced)

Selects the 7-Mode LUNs in the specified Vserver.

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

Selects the 7-Mode LUNs with the specified path.

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

Selects the 7-Mode LUNs that match the specified volume.

[-ostype <LUN Operating System Format>] - OS Type (privilege: advanced)

Selects the 7-Mode LUNs that match the specified operating system type.

[-size <size>] - LUN Size (privilege: advanced)

Selects the 7-Mode LUNs that match the specified size.

[-prefix-size <size>] - Prefix Stream Size (privilege: advanced)

Selects the 7-Mode LUNs that match the specified prefix stream size.

[-suffix-size <size>] - Suffix Stream Size (privilege: advanced)

Selects the 7-Mode LUNs that match the specified suffix stream size.

[-serial <text>] - Serial Number (privilege: advanced)

Selects the 7-Mode LUNs that match the specified serial number for clustered Data ONTAP. LUNs where `is-transitioned` is *`false`* do not have a serial number assigned for clustered Data ONTAP.

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

Selects the 7-Mode LUNs that match the specified UUID for clustered Data ONTAP. LUNs where `is-transitioned` is *`false`* do not have a UUID assigned for clustered Data ONTAP.

[-serial-7-mode <text>] - 7-mode Serial Number (privilege: advanced)

Selects the 7-Mode LUNs that match the specified serial number from 7-Mode.

[-is-transitioned {true|false}] - Transition Complete (privilege: advanced)

Selects the 7-Mode LUNs that match the specified transition state. LUNs where this value is *`true`* have been transitioned and are available to be mapped for client access. LUNs where this value is *`false`* have not yet been transitioned and may not be mapped.

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

Selects the 7-Mode LUNs that match the specified Vserver UUID.

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

Selects the 7-Mode LUNs that match the specified node name.

Examples

The following example displays a summary of all 7-Mode LUNs for the volume *`vol1`* in a Vserver named *`vs1`* :

```
cluster1::*> lun transition 7-mode show -vserver vs1 -volume vol1
Vserver   Path                            Type     Size   Transitioned
--------- ------------------------------ -------- ------ ------------
vs1       /vol/vol1/lun1                 linux      10MB false
          /vol/vol1/lun2                 linux     500MB true
          /vol/vol1/lun3                 linux     500MB true
8 entries were displayed.
```

The following example displays detailed information for the 7-Mode LUN */vol/vol1/lun2* in a Vserver named *vs1* :

```
cluster1::*> lun transition 7-mode show -vserver vs1 -path /vol/vol1/lun2
Vserver Name: vs1
            LUN Path: /vol/vol1/lun2
         Volume Name: vol1
             OS Type: linux
            LUN Size: 500MB
  Prefix Stream Size: 0
  Suffix Stream Size: 0
       Serial Number: BCVvv$DLZu8g
                UUID: f53d603b-9663-4567-9680-95c1a9cc6d9e
7-mode Serial Number: C4eqKotPI8Ui
 Transition Complete: true
        Vserver UUID: be4cc135-163f-11e3-931f-123478563412
                Node: cluster-01
```

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