Veritas Access Command Reference Guide Documentation

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Linux

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Contents

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5 Introduction

5.1 Veritas Access CLI command conventions

This document uses the following conventions when describing commands that are used in the Veritas Access CLI, also sometimes referred to as the CLISH.

5.1.1 Command conventions

- Brackets [] indicate that the enclosed component of the command line is optional.
- Curly braces { } indicate an association between the enclosed options. For example, {opt1 [opt2 . . . optn]} means that if the command contains opt1, then the command may optionally contain opt2 . . . optn.
- A vertical bar (or the pipe symbol) | separates optional arguments from which you can choose. For example, if a command has the following format, you can choose `arg1` or `arg2` (but not both):

  ```
  command [arg1 | arg2 ]
  ```

- Italics indicate that the information is user supplied. For example, the user supplies the pool name, disk, and if the storage pool is isolated or not in the following command:

  `Storage> pool create` *pool_name disk1* [, *disk2*. . .] {`isolated=[yes|no]`}

- An ellipsis (. . .) means that you can repeat the previous parameter. For example, consider the following command:

  `Storage> pool adddisk` *pool_name disk1* [, *disk2*,. . .]

5.2 About accessing the online man pages

You access the online man pages by typing `man name_of_command` at the command line.

The example shows the result of entering the `History> man` command.

NAME `history` - display command history

SYNOPSIS `history` [*username*] [*number_of_lines*]

`DESCRIPTION` The `history` command displays the commands executed by the user in the following format: <time stamp> <status> <message> <command>

```
<time stamp> : MM-DD-YYYY HH:MM
<status> : Success | Error | Warning
<message> : Description of the command.
<command> : Actual command executed by the user
```

You can also type a question mark (?) at the prompt for a list of all the commands that are available for the command mode that you are in. For example, if you are within the `Admin` mode, if you type a question mark (`?`), you see a list of the available commands for the `Admin` mode.

```
ACCESS> admin ?
Entering admin mode...
ACCESS.Admin>
exit          -- Return to the previous menus
logout        -- Logout of the current CLI session
man           -- Display on-line reference manuals
passwd        -- Change the administrator password
show          -- Show the administrator details
supportuser   -- Enable or disable the support user
user          -- Add or delete an administrator
```

To exit the command mode, enter the following command: `exit` To exit the system console, enter the following command: `logout`.

6 Admin Commands

6.1 admin

6.1.1 SYNOPSIS

`show` [*username*]

`passwd` [*username*]

`user add` *username role*

`user delete` *username*

`user modify role add` [*username*] [*role*] [*domain*]

`user modify role delete` [*username*] [*role*] [*domain*]

`group modify role add` [*groupname*] [*role*] [*domain*]

`group modify role delete` [*groupname*] [*role*] [*domain*]

`ipmi passwd` [*username*] [*old password*] [*new password*]

6.1.2 DESCRIPTION

The `admin` commands are used to display a list of users, add or delete the users, and change the password of the users. A user can be a `Primary`, `System Administrator`, or a `Storage Administrator`. Or `vxdefault` or the user can belong to one of the supported roles. A `Primary` user has all the permissions. Only the `Primary` user can add or delete other users.

6.1.3 OPTIONS

`show` **[*username*]** Show the details of the given username.

`passwd` **[*username*]** Change the password of the given username. Only the `Primary` user can change the password of other users.

`:user add` ***username role*** Add a new user with the given username and privileges. *role* is optional.

`user delete` ***username*** Delete a user with the given username.

user modify role add ***username role local\ad\ldap*** Add the *role* to the specified user. For local user, only the username is required. For domain user, the username is domain\username. Domain is an optional argument with the default value as local. For LDAP user, the value of the domain argument should be ldap.

user modify role delete ***username role local\ad\ldap*** Remove the specified *role* from the user. For local user, only the username is required. For domain user, the username is domain\username. Domain is an optional argument with the default value as local. For LDAP user, the value of the domain argument should be ldap.

group modify role add ***groupname role ad\ldap*** Add the *role* to the specified domain group. The groupname is domain\groupname.

group modify role delete ***groupname role ad\ldap*** Remove the specified *role* from the specified domain group. The groupname is domain\groupname.

:ipmi passwd ***username old password new password*** Change password for ipmi user.

6.1.4 EXAMPLES

Display all the administrators on the current system.

```
Admin> show
Users/Groups  Domain  type  Domain Type
============  ======  ====  ============
admin         -       user  Local
```

Display the details of the administrator with username *primary*.

```
Admin> show primary
Username      : primary
Privileges    : Primary
```

6.1.5 SEE ALSO

user(1), passwd(1), show(1)

6.2 group

6.2.1 SYNOPSIS

`group modify role add` *groupname role domain*

`group modify role delete` *groupname role domain*

6.2.2 DESCRIPTION

The admin `group` command adds or deletes primary role to/from existing domain groups. Role modification is not supported for local groups. Users belonging to domain group with `primary` role has all the permissions, including adding and deleting other groups.

6.2.3 OPTIONS

`group modify role add` ***groupname role domain*** Add primary role to domain group.

`group modify role delete` ***groupname role domain*** Remove primary role from domain group.

6.2.4 EXAMPLES

Modify the domain group with groupname‘‘nbu_AD_grp1‘‘ to add `primary` role

```
Admin> group modify role add domain\\nbu_AD_grp1 primary
```

Modify the domain group with groupname‘‘nbu_AD_grp1‘‘ to remove `primary` role

```
Admin> group modify role delete domain\\nbu_AD_grp1 primary
```

Modify the LDAP group with groupname‘‘nbu_LDAP1‘‘ to add `primary` role

```
Admin> group modify role add add nbu_LDAP1 primary ldap
```

Modify the LDAP group with groupname‘‘nbu_LDAP1‘‘ to remove `primary` role

```
Admin> group modify role delete nbu_LDAP1 primary ldap
```

6.2.5 SEE ALSO

show(1)

6.3 group

6.3.1 SYNOPSIS

`ipmi passwd` *username old_password new_password*

6.3.2 DESCRIPTION

The admin `ipmi` command is used to change password for ipmi user. Users having `primary` role, have permission to change password for ipmi user. Currently password change is only permitted for user having `sysadmin` username. Password change is permitted only if `sysadmin` user has default password.

6.3.3 OPTIONS

`ipmi passwd` ***username oldpassword new_password*** Change password for ipmi user.

6.3.4 EXAMPLES

Change password for ipmi user `sysadmin`

```
Admin> ipmi passwd sysadmin P@ssw0rd P@ssw0rd1
```

6.3.5 SEE ALSO

admin(1)

6.4 passwd

6.4.1 SYNOPSIS

`passwd` [*username*]

6.4.2 DESCRIPTION

The admin `passwd` command is used to change the user's password. Only the `Primary` administrator can change the password of the other administrators. Note: The system does not ask for the old password.

6.4.3 OPTIONS

username Change the password of the specified user. If *username* is not specified, the password of the currently logged-in user is changed.

6.4.4 EXAMPLES

Change the password of the currently logged-in user.

```
Admin> passwd
```

Change the password of the `primary` user.

```
Admin> passwd primary
```

6.4.5 SEE ALSO

show(1), user(1)

6.5 show

6.5.1 SYNOPSIS

`show` [*username*]

6.5.2 DESCRIPTION

The admin `show` command displays the user information that includes the user name and privileges.

6.5.3 OPTIONS

username Show details of the specified user. If the *username* is not specified, the command displays a list of all of the users.

6.5.4 EXAMPLES

Display all the ACCESS created users on the current system.

```
Admin> show
List of Users
-------------
primary
user1
```

Display the details of the administrator with username *primary*.

```
Admin> show primary
Username      : primary
Privileges    : Primary
```

6.5.5 SEE ALSO

user(1), passwd(1)

6.6 user

6.6.1 SYNOPSIS

`user add` *username role*

`user delete` *username*

`user modify role add` *username role domain*

`user modify role delete` *username role domain*

6.6.2 DESCRIPTION

The admin `user` commands add or delete a user. A user can be a `primary` user who has all of the permissions, including adding and deleting users. A Storage Administrator has access to only storage commands and is responsible for upgrading the cluster and applying the patches. A System Administrator is responsible for configuring the NFS server and exporting the file system, adding or deleting new nodes to the cluster, and configuring other network parameters like DNS, NIS, and so on. A vxdefault user role does not have any privilege.

6.6.3 OPTIONS

`user add` ***username role*** Add a user with specific privileges.

`user delete` ***username*** Delete the specified user from the current system.

`user modify role add` ***username role domain*** Add local/domain user to primary role.

`user modify role delete` ***username role domain*** Delete local/domain user from primary role.

6.6.4 EXAMPLES

Add a `primary` with username `primary1`.

```
Admin> user add primary1 primary
```

Add a `System Administrator` with username `admin`.

```
Admin> user add admin system-admin
```

Delete a user with username `admin`.

```
Admin> user delete admin
```

Modify the local user with username‘‘nbu_local1‘‘ to add primary role

```
Admin> user modify role add nbu_local1 primary
```

Modify the AD user with username‘‘nbu_AD1‘‘ to add primary role

```
Admin> user modify role add domain\\nbu_AD1 primary ad
```

Modify the LDAP user with username‘‘nbu_LDAP1‘‘ to add primary role

```
Admin> user modify role add nbu_LDAP1 primary ldap
```

Modify a user with username‘‘nbu_local1‘‘ to remove primary role

```
Admin> user modify role delete nbu_local1 primary
```

Modify the AD user with username‘‘nbu_AD1‘‘ to remove primary role

```
Admin> user modify role delete domain\\nbu_AD1 primary ad
```

Modify the LDAP user with username‘‘nbu_LDAP1‘‘ to add primary role

```
Admin> user modify role delete nbu_LDAP1 primary ldap
```

6.6.5 SEE ALSO

show(1)

6.7 admin

6.7.1 SYNOPSIS

`passwd` [*username*]

6.7.2 DESCRIPTION

The `admin` command is used to change the password of the logged in user.

6.7.3 OPTIONS

`passwd` [*username*] Change the password of the given username. Only the `Primary` user can change the password of other users.

6.7.4 SEE ALSO

passwd(1)

6.8 passwd

6.8.1 SYNOPSIS

`passwd` [*username*]

6.8.2 DESCRIPTION

The admin `passwd` command is used to change the user's password. Only the `Primary` administrator can change the password of the other administrators.

6.8.3 OPTIONS

username Change the password of the specified user. If *username* is not specified, the password of the currently logged-in user is changed.

6.8.4 EXAMPLES

Change the password of the currently logged-in user.

```
Admin> passwd
```

7 Backup Commands

7.1 backup

7.1.1 SYNOPSIS

`netbackup media-server add` *media_server* [*media_ip*]

`netbackup media-server delete` *media_server*

`netbackup master-server add` *master_server* [*master_ip*]

`netbackup master-server delete` *master_server*

`config` *name ipaddr fs_name version auth_token master_server* [*master_ip*]

`unconfig`

`upgrade` *version*

`fs add` *backup_fs*

`fs remove` *backup_fs*

`dedupe-catalog enable|disable`

`virtual-ip` *ipaddr* [*device*]

`show`

`status`

`start` [*nodename*]

`stop`

7.1.2 DESCRIPTION

The backup commands configure the built-in NetBackup client software.

7.1.3 NetBackup Client

The backup `netbackup` commands configure the local NetBackup installation to work with an external NetBackup Master Server.

The backup `netbackup master-server` and `netbackup media-server` commands configure the NetBackup client to work with the given NetBackup installation.

The backup `virtual-ip` command configures the built-in NetBackup Client installation to use *ipaddr* as its virtual IP address and *device* as the network interface for the virtual ip.

The backup `config` command configures the specified NetBackup client *version* for client *version* 8.1 and above.

The backup `unconfig` command removes the NetBackup client configuration.

The backup `upgrade` command upgrades the NetBackup client to the specified version.

The backup `fs` command adds/removes the file system to/from the NetBackup client configuration.

The backup `dedupe-catalog` command enables/disables the built-in NetBackup client to perform a backup and restore of the deduplication catalog.

Note: The NetBackup SAN client should only be enabled if the required licenses are installed on the NetBackup Master Server. If the required licenses for the NetBackup SAN client are not available on the NetBackup Master Server, then the backup service fails to start. If you do not have the required license for the NetBackup SAN client, then you must disable the SAN client using `netbackup sanclient disable`. Otherwise, the backup service fails to start.

The built-in NetBackup client software also supports snapshot-based backups. To use snapshot-based backups with the built-in NetBackup client, use snapshot type as `VxFS_Checkpoint` in the NetBackup policy configuration.

7.1.4 OPTIONS

master_server Hostname of the server to be used as the NetBackup master server. Make sure that *master_server* can be resolved through DNS and its IP address can be resolved back to *master_server* through the DNS reverse lookup.

media_server Hostname of the server to be used as the NetBackup media server. Make sure that *media_server* can be resolved through DNS and its IP address can be resolved back to *media_server* through the DNS reverse lookup.

[*media_ip*] IP of the server to be used as the NetBackup media server. Specify this parameter if DNS is not configured on the cluster. This is an optional parameter.

[*master_ip*] IP of the server to be used as the NetBackup master server. Specify this parameter for NetBackup client versions 8.1 and above, if DNS is not configured on the cluster. This is an optional parameter.

ipaddr Virtual IP address to be used by the NetBackup installation on Veritas Access nodes. Make sure that *ipaddr* can be resolved back to the hostname configured through the backup `virtual-name` command for proper functioning of NetBackup.

name Hostname to be used by a NetBackup installation on the Veritas Access nodes. Make sure that *name* can be resolved through DNS and its IP address can be resolved back to *name* through a DNS reverse lookup. Also make sure that *name* resolves to the IP address configured through the backup `virtual-ip` command. The *name* should also be added to the Host mappings table on NBU master, to ensure renewal of host certificates.

version NetBackup client version to be configured or version to which it should be upgraded. NetBackup client versions 8.1 and higher are supported.

url URL specifying the location of the Netbackup client to be installed. Currently, supported protocols are http, ftp, and scp.

auth_token Authentication token from NetBackup master server to enable backup/restore in a secure environment.

fs_name Name of the file system to be used to store the NetBackup client configuration.

backup_fs Name of the file system to be used for backup configuration.

virtual-ip ***ipaddr*** **[*device*]** Configure the NetBackup installation on the nodes to use *ipaddr* as its highly available virtual IP address and *device* as the network interface for the virtual IP address.

A network mask can be provided with the IP address as the prefix length for the *ipaddr*. For example, `virtual-ip 10.209.107.151/22`.

IPv6 addresses can be specified as "virtual-ip fec0::20c:29ff:fe8e:2203/64".

:netbackup master-server add ***auth_token master_server*** **[*master_ip*]** Add an external NetBackup master server name to be used by the NetBackup client installation on the Veritas Access nodes. This is additional an master server which can be used by NetBackup client. Make sure that the *master_server* hostname can be resolved through DNS, and its IP address can be resolved back to *master_server* hostname through the DNS reverse lookup. If DNS is not configured on the cluster, specify the [*master_ip*] to create a mapping between the *master_server* hostname and its IP address.

:netbackup master-server delete ***master_server*** Delete an already configured NetBackup master server name.

netbackup media-server add ***media_server*** **[*media_ip*]** Add an external NetBackup Media Server name to be used by the NetBackup installation on the Veritas Access nodes. This setting is optional, since if the Media Server name is not added, the local NetBackup client installation uses the NetBackup Master Server as the NetBackup Media Server. Make sure that the *media_server* hostname can be resolved through DNS, and its IP address can be resolved back to *media_server* hostname through the DNS reverse lookup. If DNS is not configured on the cluster, specify the [*media_ip*] to create a mapping between the *media_server* hostname and its IP address.

:netbackup media-server delete ***media_server*** Delete an already configured NetBackup Media Server name.

config ***name ipaddr fs_name version auth_token master_server*** **[*master_ip*]** The backup `config` command configures the specified version of the NetBackup client.

unconfig The backup `unconfig` command removes the NetBackup client configuration.

upgrade ***version*** The backup `upgrade` command upgrades the NetBackup client to the specified *version*.

fs add ***fs_name*** Add the file system to the NetBackup client configuration to enable backup/restore operations from NetBackup master server. Once we configure the file system for backup then it will be available for backup/restore operation from NetBackup master server side.

:fs remove ***fs_name*** Remove the file system from the NetBackup client configuration. Once we remove the file system from backup configuration it will not be available for backup/restore opeartions from NetBackup master server side.

dedupe-catalog enable|disable Enable/disable the NetBackup client to/from performing a backup and restore of the deduplication catalog.

show This command shows the configured settings.

status Display the status of the current backup activities.

start **[*nodename*]** Start processes that handle backup and restore. Also online a virtual IP address.

stop Stop processes that handle backup and restore. Also offline a virtual IP address.

7.1.5 EXAMPLES

Add an external NetBackup Media Server name (if the NetBackup Media Server is not co-located with the NetBackup Master Server).

```
    Backup> netbackup media-server add nbumedia.veritas.com
Success.
```

Add an external Media Server name when DNS is not configured on the cluster

```
Backup> netbackup media-server add nbumedia.veritas.com 10.209.100.100
Success.
```

Delete an already added external Media Server name.

```
    Backup> netbackup media-server delete nbumedia.veritas.com
Success.
```

Add an additional external master server name when DNS is configured on the cluster.

```
    Backup> netbackup master-server add UAXGYUEAKEGXTPKZ nbumaster.veritas.com
ACCESS backup INFO V-493-10-0 SUCCESS. nbumaster.veritas.com is added to the master␣
↪server list.
ACCESS backup INFO V-493-10-0 Stopping the NetBackup client on hemnbu-01...
ACCESS backup INFO V-493-10-0 Starting the NetBackup client on hemnbu-01
..
ACCESS backup INFO V-493-10-0 SUCCESS. The NetBackup client has restarted.
```

Add an additional external master server name when DNS is not configured on the cluster.

```
    Backup> netbackup master-server add UAXGYUEAKEGXTPKZ nbumaster.veritas.com 10.10.
↪10.10
ACCESS backup INFO V-493-10-0 SUCCESS. nbumaster.veritas.com is added to the master␣
↪server list.
ACCESS backup INFO V-493-10-0 Stopping the NetBackup client on hemnbu-01...
ACCESS backup INFO V-493-10-0 Starting the NetBackup client on hemnbu-01
..
ACCESS backup INFO V-493-10-0 SUCCESS. The NetBackup client has restarted.
```

Configure or change the virtual IP address and network interface of the NetBackup client on the Veritas Access nodes.

```
    Backup> virtual-ip 10.10.10.10 pubeth1
Success.
```

Configure the Netbackup client when DNS is configured on the cluster.

```
    Backup> config nbu_client 10.10.10.10 nbu_fs 8.2 VDYIKYFQDGOSHCHT nbumaster.
↪veritas.com
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

Configure the Netbackup client when DNS is not configured on the cluster.

```
    Backup> config nbu_client 10.10.10.10 nbu_fs 8.2 VDYIKYFQDGOSHCHT nbumaster 10.20.
↪20.10
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

Remove the existing NetBackup client configuration.

```
    Backup> unconfig
ACCESS backup INFO V-493-10-0 NetBackup client configuration removed successfully.
```

Upgrade the NetBackup client to a higher version.

```
Backup> upgrade 8.3.0.1
NetBackup client has been successfully upgraded from version 8.2 to 8.3.0.1.
```

Add file system to the NetBackup client configuration.

```
    Backup> fs add data_fs
ACCESS backup INFO V-493-10-0 Filesystem data_fs is successfully configured for␣
↪backup.
```

Add another file system to the NetBackup client configuration.

```
    Backup> fs add new_data_fs
ACCESS backup INFO V-493-10-0 Filesystem new_data_fs is successfully configured for␣
↪backup.
```

Remove file system from the NetBackup client configuration.

```
    Backup> fs remove data_fs
ACCESS backup INFO V-493-10-0 Filesystem data_fs removed successfully from backup␣
↪configuration.
```

Enable the deduplication catalog backup/restore.

```
Backup> dedupe-catalog enable
Deduplication catalog backup with NetBackup client has been successfully enabled.
```

Show the configured settings.

```
    Backup> show
Virtual Name:                   nbuclient.veritas.com
Virtual IP:                     10.10.10.10/24
NetBackup Master Server:        nbumaster.veritas.com
NetBackup Media Server(s):      Not Configured
Backup Filesystem(s):           Not Configured
Bakcup Device:                  pubeth1
Netbackup Client Version:       8.3.0.1
Dedupe Catalog Backup:          Disabled
NetBackup global log level:     3
NetBackup database log level:   5
Enable robust logging:          Yes
Enable critical process logging: Yes
```

Display the status when no backup jobs are running.

```
    Backup> status

ACCESS backup INFO V-493-10-4973 No backup/restore jobs are currently running.
Virtual IP state:                Online
NetBackup client state:          Running
Backup service online node:      node-01
```

Display the status when backup jobs are running that involve file systems using the NetBackup client.

```
    Backup> status

ACCESS backup INFO V-493-10-4973 Some filesystems are busy performing backup/restore␣
↪jobs.
Virtual IP state:                 Online
NetBackup client state:           Running
Backup service online node:       node-01
```

Start processes that handle backup and restore.

```
    Backup> start
ACCESS backup INFO V-493-10-0 Starting Backup Service on node-01
..
ACCESS backup INFO V-493-10-0 NetBackup Client is running successfully
```

Stop processes that handle backup and restore when backup jobs are running.

```
    Backup> stop
ACCESS backup ERROR V-288-0 Cannot stop, some backup jobs are running.
```

7.1.6 SEE ALSO

netbackup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.2 config

7.2.1 SYNOPSIS

`config` *name ipaddr fs_name version auth_token master_server* [*master_ip*]

7.2.2 DESCRIPTION

The backup `config` command configures the specified version of the NetBackup client.

7.2.3 OPTIONS

name Hostname to be used by a NetBackup client configuration on the Veritas Access nodes. Make sure that *name* can be resolved through DNS and its IP address can be resolved back to *name* through a DNS reverse lookup. Also make sure that *name* resolves to the IP address parameter *ipaddr* we provide for configuration.

ipaddr Virtual IP address to be used by the NetBackup client configuration on Veritas Acces nodes. Make sure that *ipaddr* can be resolved back to the *name* we use for configuration.

fs_name Name of the file system used to store NetBackup client configuration.

version NetBackup client version to be installed. NetBackup versions 8.1 and higher are supported.

auth_token Authentication token from NetBackup master server to enable backup/restore in a secure environment.

master_server Hostname of the server to be used as the NetBackup master server. Make sure that *master_server* can be resolved through DNS and its IP address can be resolved back to *master_server* through the DNS reverse lookup.

[*master_ip*] IP of the server to be used as the NetBackup master server. Specify this parameter if DNS is not configured on the cluster. This is an optional parameter.

7.2.4 EXAMPLES

Configure the NetBackup client version 8.1.2.1 when DNS is configured on the cluster.

```
    Backup> config myclient 10.10.10.10 nbu_conf 8.1.2.1 KVFKWGJRNZUZRDTF mymaster.
↪veritas.com
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

Configure the NetBackup client version 8.2 when DNS is configured on the cluster.

```
    Backup> config myclient 10.10.10.10 nbu_conf 8.2 KVFKWGJRNZUZRDTF mymaster.
↪veritas.com
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

Configure the NetBackup client version 8.1.2.1 when DNS is not configured on the cluster.

```
    Backup> config myclient 10.10.10.10 nbu_conf 8.1.2.1 KVFKWGJRNZUZRDTF mymaster.
↪veritas.com 10.20.20.10
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

Configure the NetBackup client version 8.2 when DNS is not configured on the cluster.

```
    Backup> config myclient 10.10.10.10 nbu_conf 8.2 KVFKWGJRNZUZRDTF mymaster.
↪veritas.com 10.20.20.10
ACCESS backup INFO V-493-10-0 NetBackup client configured successfully.
```

7.2.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.3 dedupe-catalog

7.3.1 SYNOPSIS

```
dedupe-catalog enable|disable
```

7.3.2 DESCRIPTION

The backup `dedupe-catalog` command configures the built-in NetBackup client to perform a backup and restore of the deduplication catalog.

7.3.3 OPTIONS

`dedupe-catalog enable|disable` Enable/disable the NetBackup client to/from performing a backup and restore of the deduplication catalog.

7.3.4 EXAMPLES

Enable the deduplication catalog backup/restore.

```
Backup> dedupe-catalog enable
Deduplication catalog backup with NetBackup client has been successfully enabled.
```

Disable the deduplication catalog backup/restore.

```
Backup> dedupe-catalog disable
Deduplication catalog backup with NetBackup client has been successfully disabled.
```

7.3.5 SEE ALSO

backup(1), virtual-ip(1), virtual-name(1), show(1), status(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.4 fs

7.4.1 SYNOPSIS

`fs add` *fs_name*

`fs remove` *fs_name*

7.4.2 DESCRIPTION

The backup `fs` commands are used to add/remove the file system(s) to/from NetBackup client configuration.

7.4.3 OPTIONS

fs_name Name of the file system that we want to add/remove to/from the NetBackup client configuration.

`fs add` ***fs_name*** Configure the file system to the NetBackup client configuration to enable backup/restore operations from NetBackup master server. Once we configure the file system for backup then it will be available for backup/restore operation from NetBackup master server side.

`fs remove` ***fs_name*** Remove the file system from the NetBackup client configuration. Once we remove the file system from backup configuration it will not be available for backup/restore opeartions from NetBackup master server side.

7.4.4 EXAMPLES

Add file system to the NetBackup client configuration.

```
Backup> fs add data_fs
ACCESS backup INFO V-493-10-0 Filesystem data_fs configured successfully for backup.
```

Remove file system from NetBackup client configuration.

```
Backup> fs remove data_fs
ACCESS backup INFO V-493-10-0 Filesystem data_fs removed successfully from backup␣
↪configuration.
```

7.4.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), config(1), unconfig(1), dedupe-catalog(1), upgrade(1)

7.5 netbackup

7.5.1 SYNOPSIS

`netbackup master-server add` *master_server* [*master_ip*]

`netbackup master-server delete` *master_server*

`netbackup media-server add` *media_server* [*media_ip*]

`netbackup media-server delete` *media_server*

7.5.2 DESCRIPTION

The backup `netbackup` commands configure the local NetBackup installation with an external NetBackup Master Server.

The backup `netbackup master-server` and `netbackup media-server` configures the NetBackup client to work with the given NetBackup installation.

7.5.3 OPTIONS

master_server Hostname of the server to be used as the NetBackup master server. Make sure that *master_server* can be resolved through DNS and its IP address can be resolved back to *master_server* through the DNS reverse lookup.

media_server Hostname of the server to be used as the NetBackup media server. Make sure that *media_server* can be resolved through DNS and its IP address can be resolved back to *media_server* through the DNS reverse lookup.

[*master_ip*] IP of the server to be used as the NetBackup master server. Specify this parameter if DNS is not configured on the cluster. This is an optional parameter.

auth_token Authentication token from NetBackup master server to enable backup/restore in a secure environment.

[*media_ip*] IP of the server to be used as the NetBackup media server. Specify this parameter if DNS is not configured on the cluster. This is an optional parameter.

:`netbackup master-server add` *auth_token master_server* [*master_ip*] Add an external NetBackup master server name to be used by the NetBackup client installation on the Veritas Access nodes. This is an additional master server which can be used by NetBackup client. Make sure that the *master_server* hostname can be resolved through DNS, and its IP address can be resolved back to *master_server* hostname through the DNS reverse lookup. If DNS is not configured on the cluster, specify the [*master_ip*] to create a mapping between the *master_server* hostname and its IP address.

:`netbackup master-server delete` *master_server* Delete an already configured NetBackup Master Server name.

`netbackup media-server add` *media_server* [*media_ip*] Add an external NetBackup Media Server name to be used by the NetBackup installation on the Veritas Access nodes. This setting is optional, since if the Media Server name is not added, the local NetBackup client installation uses the NetBackup Master Server as the NetBackup Media Server. Make sure that the *media_server* hostname can be resolved through DNS, and its IP address can be resolved back to *media_server* hostname through the DNS reverse lookup. If DNS is not configured on the cluster, specify the [*media_ip*] to create a mapping between the *media_server* hostname and its IP address.

netbackup media-server delete *media_server* Delete an already configured NetBackup Media Server name.

7.5.4 EXAMPLES

Add an additional external master server name when DNS is configured on the cluster.

```
    Backup> netbackup master-server add UAXGYUEAKEGXTPKZ nbumaster.veritas.com
ACCESS backup INFO V-493-10-0 SUCCESS. nbumaster.veritas.com is added to the master␣
↪server list.
ACCESS backup INFO V-493-10-0 Stopping the NetBackup client on hemnbu-01...
ACCESS backup INFO V-493-10-0 Starting the NetBackup client on hemnbu-01
..
ACCESS backup INFO V-493-10-0 SUCCESS. The NetBackup client has restarted.
```

Add an additional external master server name when DNS is not configured on the cluster.

```
    Backup> netbackup master-server add UAXGYUEAKEGXTPKZ nbumaster.veritas.com 10.10.
↪10.10
ACCESS backup INFO V-493-10-0 SUCCESS. nbumaster.veritas.com is added to the master␣
↪server list.
ACCESS backup INFO V-493-10-0 Stopping the NetBackup client on hemnbu-01...
ACCESS backup INFO V-493-10-0 Starting the NetBackup client on hemnbu-01
..
ACCESS backup INFO V-493-10-0 SUCCESS. The NetBackup client has restarted.
```

Add an external NetBackup Media Server name (if the NetBackup Media Server is not co-located with the NetBackup Master Server).

```
Backup> netbackup media-server add nbumedia.veritas.com
Success.
```

Add an external Media Server name when DNS is not configured on the cluster

```
Backup> netbackup media-server add nbumedia.veritas.com 10.209.100.100
Success.
```

Delete an already added external Media Server name.

```
Backup> netbackup media-server delete nbumedia.veritas.com
Success.
```

7.5.5 SEE ALSO

backup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.6 show

7.6.1 SYNOPSIS

`show`

7.6.2 DESCRIPTION

The backup `show` command displays the configured settings. The displayed settings may not be currently used by the Veritas Access nodes. When some settings are configured, there might be backup and restore jobs that are running, and so those settings do not immediately take effect. To fill this gap, you have to use the backup `stop` command followed by the backup `start` command.

7.6.3 OPTIONS

`show`

This command shows the configured settings.

7.6.4 EXAMPLES

Show the configured settings.

```
    Backup> show
Virtual Name:                   nbuclient.veritas.com
Virtual IP:                     10.10.10.10/24
NetBackup Master Server:        nbumaster.veritas.com
NetBackup Media Server(s):      Not Configured
Backup Filesystem(s):           Not Configured
Bakcup Device:                  pubeth1
Netbackup Client Version:       8.3.0.1
Dedupe Catalog Backup:          Disabled
NetBackup global log level:     3
NetBackup database log level:   5
Enable robust logging:          Yes
Enable critical process logging: Yes
```

7.6.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), status(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.7 start

7.7.1 SYNOPSIS

`start` [*nodename*]

7.7.2 DESCRIPTION

The backup `start` command starts backup processes that handle backup and restore. It will do nothing if those processes are currently running. It places the virtual IP address configured through the backup `virtual-ip` command in online mode on any of the currently active nodes or *nodename* if specified.

7.7.3 OPTIONS

`start`

Start processes that handle backup and restore. Also places the virtual IP address in online mode.

7.7.4 EXAMPLES

Start processes that handle backup and restore.

```
Backup> start
   ACCESS backup INFO V-493-10-0 Starting the NetBackup client on node1
   ..
   ACCESS backup INFO V-493-10-0 NetBackup Client is running successfully
```

7.7.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.8 status

7.8.1 SYNOPSIS

`status`

7.8.2 DESCRIPTION

The backup `status` command shows if the NetBackup client has started or stopped on the Veritas Access nodes. If the NetBackup client has currently started and is running, it also shows if there are any ongoing backup or restore jobs.

7.8.3 OPTIONS

`status`

Display the status of current backup activities.

7.8.4 EXAMPLES

Display the status when no backup jobs are running.

```
    Backup> status

ACCESS backup INFO V-493-10-4973 No backup/restore jobs are currently running.
Virtual IP state:                Online
NetBackup client state:          Running
Backup service online node:      node-01
```

Display the status when backup jobs are running that involve file systems using the NetBackup client.

```
    Backup> status

ACCESS backup INFO V-493-10-4973 Some filesystems are busy performing backup/restore␣
↪jobs.
Virtual IP state:                Online
NetBackup client state:          Running
Backup service online node:      node-01
```

7.8.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.9 stop

7.9.1 SYNOPSIS

```
stop
```

7.9.2 DESCRIPTION

The backup `stop` command stops processes that handle backup and restore. Nothing stops if there are any backup jobs running that involve file systems on the Veritas Access nodes. It will also offline the virtual IP address configured.

7.9.3 OPTIONS

`stop`

Stop processes that handle backup and restore. It also places the virtual IP address in the offline mode.

7.9.4 EXAMPLES

Stop processes that handle backup and restore when backup jobs are running.

```
Backup> stop
ACCESS backup ERROR V-288-0 Cannot stop, some backup jobs are running.
```

7.9.5 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), start(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

7.10 unconfig

7.10.1 SYNOPSIS

`unconfig`

7.10.2 DESCRIPTION

The backup `unconfig` command removes the existing NetBackup client configuration.

7.10.3 EXAMPLES

Remove already existing NetBackup client configuration.

```
    Backup> unconfig
ACCESS backup INFO V-493-10-4937 NetBackup client configuration removed successfully.
```

7.10.4 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), config(1), fs(1), dedupe-catalog(1), upgrade(1)

7.11 upgrade

7.11.1 SYNOPSIS

`upgrade` *version*

7.11.2 DESCRIPTION

The upgrade command is used to upgrade the currently configured NetBackup client to a higher version.

7.11.3 NOTE

Running a NetBackup client with version higher than the master/media server is not supported.

7.11.4 OPTIONS

version Version to upgrade the NetBackup client. The *version* specified should be higher than the version of the currently configured NetBackup client.

7.11.5 EXAMPLES

Upgrade the NetBackup client to a higher version.

```
Backup> upgrade 8.3.0.1
NetBackup client has been successfully upgraded from version 8.2 to 8.3.0.1.
```

7.11.6 SEE ALSO

backup(1), netbackup(1), virtual-ip(1), show(1), status(1), start(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1)

7.12 virtual-ip

7.12.1 SYNOPSIS

`virtual-ip set` *ipaddr* [*device*]

7.12.2 DESCRIPTION

The backup `virtual-ip` command configures the built-in NetBackup client to use *ipaddr* as its virtual IP address and *device* as the network interface for the virtual IP.

7.12.3 OPTIONS

ipaddr Virtual IP address to be used by the NetBackup client on the Veritas Access nodes. Make sure that *ipaddr* can be resolved back to the hostname, configured by using the backup `virtual-name` command.

`virtual-ip set` ***ipaddr*** **[*device*]** Configure the NetBackup client on the Veritas Access nodes to use *ipaddr* as its highly available virtual IP address and *device* as the network interface for the virtual IP address.

A network mask can be provided with the IP address as the prefix length for the *ipaddr*. For example, `virtual-ip set 10.209.107.151/22`.

IPv6 addresses can be specified as `virtual-ip set fec0::20c:29ff:fe8e:2203/64`.

7.12.4 EXAMPLES

Configure or change the virtual IP address of the NetBackup client on the Veritas Access nodes.

```
Backup> virtual-ip set 10.10.10.10/20 pubeth1
Success.
```

To configure an IPv6 address for backup.

```
Backup> virtual-ip set fec0::20c:29ff:fe8e:2203/64 pubeth0
Success.
```

7.12.5 SEE ALSO

backup(1), netbackup(1), show(1), status(1), start(1), virtual-ip(1), stop(1), config(1), unconfig(1), fs(1), dedupe-catalog(1), upgrade(1)

8

CIFS Commands

8.1 cifs

8.1.1 SYNOPSIS

`server` start|stop|status

`share add` *filesystem sharename[@virtual_ip]* [*cifsoptions*]

`share modify` *sharename[@virtual_ip]* [*cifsoptions*]

`share delete` *sharename[@virtual_ip]*

`share show` [*sharename*]

`share allow` *sharename @group1* [*,@group2,user1,user2,...*]

`share deny` *sharename @group1* [*,@group2,user1,user2,...*]

`set allow_trusted_domains` *yes|no* [*trusted_domains*]

`set ntlm_auth` *yes|no*

`set server_signing` *default|auto|mandatory|disabled*

`set security` *ads|user*

`set idmap_backend ldap` [*idmap_ou*] [*uid_range*]

`set idmap_backend rid` [*uid_range*]

`set idmap_backend hash`

`set idmap_backend ad` [*uid_range*]

`set homedirfs` [*filesystemlist*] [full_acl]

`set aio_size` *size*

`set data_migration` *yes|no*

`set clustering_mode` *normal|ctdb*

`set max_protocol` *SMB version*

`set min_protocol` *SMB version*

`local user add` *username* [*grouplist*]

`local password` *username*

`local user delete` *username*

`local user show` [*username*]

`local group add` *groupname*

`local group delete` *groupname*

`local group show` [*groupname*]

`local user members` *username grouplist*

`mapuser add` *CIFSusername domainname NFSusername*

`mapuser remove` *CIFSusername* [*domainname*]

`mapuser show` [*CIFSusername*] [*domainname*]

`homedir set` *username* [*domainname*] [*fs_name*]

`homedir delete` *username* [*domainname*]

`homedir deleteall`

`homedir show` [*username*] [*domainname*]

`show`

8.1.2 DESCRIPTION

The `cifs` commands maintain the current table of exported file systems for CIFS.

For the CIFS service to work properly in an active directory domain environment, the following protocals and firewall ports need be allowed or opened in the environment to allow the CIFS server to communicate smoothly with the active diretory domain controller(s) and Windows CIFS clients.

`ICMP` **:** Internet Control Message Protocol (ICMP) protocol must be allowed through the firewall from the CIFS server to the domain controllers. Enable "Allow incoming echo request" is a must requirement for running the CIFS service.

Other ports and protocols:

```
Port               Protocol
----               --------
TCP and UDP 53     DNS
TCP and UDP 88     Kerberos
TCP 139            DFSN, NetBIOS Session Service, NetLog
TCP and UDP 445    SMB,CIFS,DFSN, LSARPC, NbtSS, NetLogonR, SamR, SrvSvc
TCP and UDP 464    Kerberos change/set password
TCP 3268           LDAP GC
```

If LDAP with SSL is required, the following ports need to be opened:

```
Port               Protocol
----               --------
TCP 636            LDAP SSL
TCP 3269           LDAP GC SSL
```

8.1.3 OPTIONS

cifsoptions Comma-separated list of export options for a CIFS share are: ro, rw, guest, noguest, oplocks, nooplocks, full_acl, no_full_acl, enable_encryption, disable_encryption, shadow_copy, hide_unreadable, veto_sys_files, enable_durable_handles, owner=ownername, group=groupname, fs_mode=fspermission, dir_mask=dirpermission, create_mask=filepermission, allow=user+@group, deny=user+@group, max_connections=connections. The default export options are: ro, noguest, oplocks, no_full_acl, fs_mode=1777, dir_mask=775, create_mask=775, allow=all.

server start|stop|status Start, stop, or display the status of the CIFS resources. All variable settings made using the set command come into effect only when the server is restarted. For example, set can be used to set the security to ads or to a value other than ads, but the server joins or leaves the Active Directory domain only when the server is restarted after using the set command. One exception is the case when the server is already stopped, and later security is set to a value other than ads.

share add ***filesystem sharename[@virtual_ip]*** **[*cifsoptions*]** Export the file system with the given *sharename*. The new options are updated after the command is run. In `ctdb` clustering mode, you can give the directory path instead of the file system. While specifying the directory path, make sure it always starts with the file system name (Note: not with the mount point `/vx`). If *@virtual_ip* is specified, the share becomes a segregated share and it can only be accessed by that virtual_ip.

share modify ***sharename[@virtual_ip]*** **[*cifsoptions*]** Re-export the file system with the given *sharename*. The new options are updated after the command is run. In `ctdb` clustering mode, you can give the directory path instead of the file system. While specifying the directory path, make sure it always starts with the file system name (Note: not with the mount point `/vx`). If *@virtual_ip* is specified, the share becomes a segregated share and it can only be accessed by that virtual_ip.

share delete ***sharename[@virtual_ip]*** Unexport the share with the name *sharename*.

share show **[*sharename*]** List all the exported resources. If *sharename* is specified, then Veritas Access prints all the details of the given *sharename*.

share allow ***sharename @group1*** **[*,@group2,user1,user2,...*]** Allow only the specified users and groups to access the share. If *all* is specified, then default access restrictions are restored on the share. User or group separator can be a comma or a plus symbol, double backslash should be added between domain name and user or group in case the allowed one comes from the trusted domain.

share deny ***sharename @group1*** **[*,@group2,user1,user2,...*]** Deny the specified users and groups to access the share. If *all* is specified, then all the users and groups are not able to access the share. User or group separator can be a comma or a plus symbol, double backslash should be added between domain name and user or group in case the denied one comes from the trusted domain.

set allow_trusted_domains ***yes|no*** **[*trusted_domains*]** If allow_trusted_domains is set to `yes`, then multiple domain environments are allowed. Otherwise multiple domain environments are not allowed. Note: This option cannot be set to yes if security mode is user. User can also specify the trusted domains that allow access to the CIFS server when this option is set to yes and the idmap backend is set to `rid` or `ad`. By default, all the trusted domains are included in the configuration. Default allow_trusted_domains value: `no`

set ntlm_auth ***yes|no*** If ntlm_auth is set to no, then an NTLMv2 response needs to be sent by the client. Otherwise Veritas Access attempts to authenticate users using the NTLM-encrypted password response. Default ntlm_auth value: `yes`

:set server_signing ***default|auto|mandatory|disable*** If server_signing is set to off then the server does not requires SMB signing. SMB signing allows the recipient of SMB packets to confirm their authenticity and helps prevent man in the middle attacks against SMB. Default server_signing value: `mandatory`

set security *ads|user* Set CIFS security to user (user-level security that a client must log on with a valid username and password), or ads (CIFS server acts as a domain member in an Active Directory). Before setting the security to `ads`, it is required to set `domain`, `domaincontroller`, and `domainuser`. When the user executes the `server start` command, CIFS server asks for the password corresponding to the `domainuser` to join in the AD. If using security as `ads`, make sure that the clock of the AD server and the CIFS server is set to the same time. Use the NTP server if possible. Default security Value: `user`

set idmap_backend ldap [*idmap_ou***] [***uid_range***]** This option tells the CIFS server to obtain SID to UID/GID mappings from a common LDAP backend. The LDAP server used for this has to be configured through the lLDAP sub-section in the network section. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`. The `idmap_ou` is optional and set to `cifsidmap`. By default, the user can specify if the CIFS idmap OrganizationalUnitName(OU) is named differently on the LDAP server. The `uid_range` is optional and set to `10000-1000000` by default.

set idmap_backend rid [*uid_range***]** User can use this option to get the unique SID to UID/GID mappings based on RID and LOW_RANGE_ID. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`. The `uid_range` is set to `10000-1000000` by default. Change it in case there are more than 1,000,000 users existing on the local cluster, joined active directory, or trusted domains. Note: Do not attempt to modify LOW_RANGE_ID (10000) if there is user data on the CIFS server, it may lead to data access denied for the UID changes.

set idmap_backend hash User can use this option to get the unique SID to UID/GID mappings by the implemented hashing algorithm. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`.

set idmap_backend ad [*uid_range***]** User can use this option to get the unique UID/GID from the domain by reading id mappings from an AD server that uses RFC2307/SFU schema extensions, this is a readonly idmap backend. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`. A valid user from a domain or a trusted domain should have a UID as well as a GID for the user's primary group. The `uid_range` is set to `10000-1000000` by default, change it in case there are more than 1,000,000 users existing on the local cluster, joined active directory, or trusted domains. Note: ID range is adjusted automatically according to the search results of the defined UNIX IDs from the domain after a CIFS server restart.

set homedirfs [*filesystemlist***] [full_acl]** Set the given list of file systems to be used for the home directory. All of the home directories of the users are created in these file systems. *filesystem* is a comma-separated list of file system names. It has to be empty to unset the home directory file system. full_acl can be set as an option. Automatic migration of the content of users (i.e., users home directories) from one file system to another file system while switching homedir is not supported. So if an administrator changes homedir from fs1 to fs2, then home directories of the user do not migrate from fs1 to fs2 automatically.

set aio_size *size* Set aio_fork option. If *size* is not 0, then enable aio_fork and set it as aio read/write size. If it's 0, then disable aio_fork and set 0 to aio read/write size.

set data_migration *yes|no* User can use this option to enable data migration from a Windows machine by a domain administrator when ACL information for files or directories should be preserved. The ROBOCOPY command from the Windows Resource Kit Tools is required to complete the task. Set the option to `yes` and restart the CIFS server, and then data migration mode is enabled. Set the option to `no` after data migration is completed for CIFS server security.

set clustering_mode *normal|ctdb* Set clustering mode for the CIFS server. There are two clustering modes avilable with Veritas Access: *normal* and *ctdb*. Each clustering mode supports all of the three operating modes. The CTDB clustering mode is a different clustered implementation of Veritas Access CIFS, which supports all the features that are supported by normal clustering mode as well as some additional features. Veritas Access supports automated and seamless migration of shares and home directories from one mode to another.

set max_protocol ***SMB version*** Set the maximum version of the SAMBA protocol for CIFS.

set min_protocol ***SMB version*** Set the minimum version of the SAMBA protocol for CIFS.

local user add ***username*** **[*grouplist*]** Add the local CIFS user. This user gets authenticated when security is set to user.

local password ***username*** Reset the password for the local CIFS user.

local user delete ***username*** Delete the specified CIFS user.

local user show [*username*] Show UID and group(s) details of the given username.

local group add ***groupname*** Add the local CIFS group.

local group delete ***groupname*** Delete the local CIFS group.

local group show [*groupname*] Show the list of available local CIFS groups. If 'groupname' is specified, it shows all the users belonging to that group.

local user members ***username grouplist*** Add the local CIFS user to the given groups in the grouplist.

mapuser add ***CIFSusername domainname NFSusername*** Map CIFS user to NFS user. This mapping is useful when the same file system is accessed using both CIFS and NFS. This functionality can also be used to map multiple users to a single username to share common data.

mapuser remove ***CIFSusername*** **[*domainname*]** Remove the mapping between CIFS and NFS user. It may be possible that the CIFS user may not be able to access its previous data after removing the mapping. Default domain is `local`.

mapuser show [*CIFSusername*] [*domainname*] Show the mapping between CIFS and NFS user. If CIFS username is not specified, it shows all the existing mappings. Default domain name is `local`.

homedir set ***username*** **[*domainname*] [*fs_name*]** Set the homedir for the given user. If the home directory does not exist for the given user, this command creates that user's home directory. Use *fs_name* to specify the home directory file system where the user's home directory is created. Otherwise, the user's home directory is created on the home directory file system that has the fewest home directories. Use `storage quota cifshomedir set` to set the quota vaule for the user, otherwise the value set from the `storage quota cifshomedir setdefault` is used to configure the quota limit. If either user or default quota is not set, 0 is taken as the default value that is treated as the unlimited quota.

homedir delete ***username*** **[*domainname*]** Delete the home directory of the given user.

homedir deleteall Delete all of the home directories on the homedir file system.

homedir show [*username*] [*domainname*] Display homedir usage information.

show Display the list of all the global options and their values. Use the `set` command to modify these values.

8.1.4 EXAMPLES

Add a local CIFS group `grp1`

```
CIFS> local group add grp1
Adding GROUP : grp1
Success: Group grp1 created successfully
```

Create the new CIFS user `usr1` and assign it to existing groups `grp1`.

```
CIFS> local user add usr1 grp1
Input password for usr1.
Enter password:
Re-enter password:
Adding USER : usr1
Success: User usr1 created successfully
```

Reset password for the local CIFS user `usr1`.

```
CIFS> local password usr1
Changing password for usr1.
New password:
Re-enter new password:
Password changed for user: 'usr1'
```

Delete the local CIFS user `usr1`

```
CIFS> local user delete usr1
Deleting User: usr1
Success: User usr1 deleted successfully
```

Show the list of local CIFS users.

```
CIFS> local user show
List of Users
-------------
usr1
```

Map CIFS user to NFS user.

```
CIFS> mapuser add administrator VERITASDOMAIN.COM nfsusr1
```

Remove the mapping between CIFS and NFS user.

```
CIFS> mapuser remove administrator VERITASDOMAIN.COM
```

Show the mapping between CIFS and NFS user.

```
CIFS> mapuser show  administrator VERITASDOMAIN.COM
```

```
CIFSUserName    DomainName      NFSUserName
administrator   VERITASDOMAIN   nfsusr1
```

Export the file system `fs1` with name `share1`.

```
CIFS> share add fs1 share1
Exporting CIFS filesystem : share1 ...
```

Display the list of shares exported over CIFS.

1. List all shares exported over CIFS

```
CIFS> share show
       ShareName    FileSystem  ShareOptions
          share1           fs1  owner=root,group=root
```

2. Detailed list of shares in normal mode. For non-segregated shares, it includes details such as the VIP address used as its MSDFS referral IP. Segregated shares do not have MSDFS referral IP associated with them.

```
CIFS> share show share1
ShareName  VIP Address
=========  =============
share1     10.209.103.82

CIFS> cifs share show share2@10.209.103.82
ShareName             VIP Address
====================  ===========
share2@10.209.103.82
```

Unexport the share with the name `share1`:

```
CIFS> share delete share1
Unexporting CIFS share : share1 ....
```

Allow user `user1` and group `group1` to access the share `share1`:

```
CIFS> share allow share1 user1,@group1
Warning: Modifying an already existing share.
.........Done
```

Allow trusted domain user `user1` and group `group1` to access the share `share1`:

```
CIFS> share allow share1 domain\\\\\\\\user1,@domain\\\\\\\\group1
Warning: Modifying an already existing share.
.........Done
```

Deny user `user1` and group `group1` to access the share `share1`:

```
CIFS> share deny share1 user1,@group1
Warning: Modifying an already existing share.
.........Done
```

Deny trusted domain user `user1` and group `group1` to access the share `share1`:

```
CIFS> share deny share1 domain\\\\\\\\user1,@domain\\\\\\\\group1
Warning: Modifying an already existing share.
.........Done
```

After setting all the domain parameters using `network ad set` command, the user can set the security to either `ads` if the domain controller is an active directory server, or the user can set the security to `domain` if the domain controller is an NT domain controller:

```
CIFS> set security ``ads``
Global option updated. Note: Restart the CIFS server.
```

The user can also set the signing for the smb server. Server signing supports default, auto, mandatory and disabled as possible values:

```
CIFS> set server_signing mandatory
Global option updated. Note: Restart the CIFS server.
```

Display the list of global options:

```
    CIFS> show
                          Name  Value
                          ----  -----
```

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```
                  netbios name  test
                     ntlm auth  yes
         allow trusted domains  no
                server signing  mandatory
                     homedirfs
                      aio size  0
                idmap backend  rid:10000-1000000
                     workgroup  VERITASDOMAIN
                      security  ads
                        Domain  VERITASDOMAIN.COM
                   Domain user  administrator
              Domain Controller  VERITASSERVER
                Clustering Mode  normal
                   Max Protocol  SMB3
                   Min Protocol  LANMAN1

Note that the system will make a note of these parameters, but it will not attempt to␣
↪join the specified domain. That will happen only when the CIFS server is started␣
↪the next time using the ``server`` command.

Starting the CIFS server after all domain-related parameters have been set.
    CIFS> server start

    The skew of the system clock with respect to Domain controller is:  3 seconds

    Time on Domain controller : Fri November 30 06:00:03 2008
    Time on this system : Fri November 30 06:00:00 PDT 2008

    If the above clock skew is greater than that allowed by the server,
    then the system won't be able to join the AD domain

    Enter password for user 'administrator':

    Trying to become a member in AD domain VERITASDOMAIN.COM ...
    Joined domain VERITASDOMAIN.COM OK
    Starting CIFS Server..

Display the status of the CIFS server.

CIFS> server status
CIFS Status on test_01 : ONLINE
CIFS Status on test_02 : ONLINE

Homedirfs                 : fs
Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Domain Controller         : VERITASSERVER
Domain User               : administrator
Clustering Mode           : normal
```

Display the status of the CIFS server if allowed_trusted_domain is set to yes.

```
CIFS> server status
CIFS Status on test_01 : ONLINE
CIFS Status on test_02 : ONLINE
```

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```
Homedirfs                 : fs
Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Domain Controller         : VERITASSERVER
Domain User               : administrator
Clustering Mode           : normal
Trusted Domains           : VERITASDOMAIN1 [VERITASDOMAIN2] VERITASDOMAIN3
```

Note: Domain name with square bracket means this trusted domain is obsolete.

Stop the CIFS server.

```
CIFS> server stop
Stopping CIFS Server.....Success.
```

Exporting a directory `fs1/dir1` in `ctdb` clustering mode.

```
ctdb.CIFS> share add fs1/dir1 share1 rw,full_acl
Exporting CIFS filesystem : share1 ..Success.

ctdb.CIFS> share show
      ShareName    FileSystem     ShareOptions
         share1    fs1/dir1       owner=root,group=root,fs_mode=755,rw,full_acl
```

Migration from `ctdb` clustering mode to `normal` clustering mode.

1. Check the status of the CIFS server.

```
ctdb.CIFS> server status
CIFS Status on ctdb_01 : ONLINE
CIFS Status on ctdb_02 : ONLINE

Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Workgroup                 : VERITASDOMAIN
Domain Controller         : veritasdomain.veritas.com
Domain User               : administrator
Clustering Mode           : ctdb
```

2. List the shares and homedir.

```
ctdb.CIFS> share show
      ShareName               FileSystem  ShareOptions
         share1    fs1/Veritas Access  owner=root,group=root,fs_mode=755,rw,noguest
         share2    fs1/Veritas Access  owner=root,group=root,fs_mode=755,ro,guest
         share3                   fs3  owner=root,group=root,fs_mode=1777
         share4                   fs4  owner=root,group=root,fs_mode=1777,rw

ctdb.CIFS> homedir show
                 UserName      DomainName
                     usr1           LOCAL
            administrator           VERITASDOMAIN
```

3. Stop the CIFS server and set clustering mode to `normal`.

```
ctdb.CIFS> server stop

Disabling membership in AD domain VERITASDOMAIN.COM

Enter password for user 'administrator':
Left AD domain VERITASDOMAIN.COM
Stopping CIFS Server......Success.

ctdb.CIFS> set clustering_mode normal
Global option updated. Note: Restart the CIFS server.
```

4. Start the CIFS server in `normal` clustering mode.

```
ctdb.CIFS> server start
Uninstalling 'ctdb' Clustering Mode..............Success.
Installing 'normal' Clustering Mode..........Success.

The skew of the system clock with respect to Domain controller veritasdomain.veritas.
↪com
(10.209.110.210) is:  9 seconds

Time on Domain controller : Thu Aug 19 16:54:03 2010
Time on this system : Thu Aug 19 16:53:54 IST 2010

If the above clock skew is greater than that allowed by the server,
then the system won't be able to join the AD domain


Trying to become a member in AD domain VERITASDOMAIN.COM ...

Enter password for user 'administrator':
Joined domain VERITASDOMAIN.COM OK
ACCESS cifs WARNING V-288-0 Migration of following shares are not supported in normal
clustering mode
              Sharename   FS Name
                 share1   fs1/Veritas Access
                 share2   fs1/Veritas Access
Starting CIFS Server.....Success.
```

5. Check the shares and home directory after migrating to `normal` clustering modes.

```
ctdb.CIFS> share show
      ShareName             FileSystem  ShareOptions
         share3                    fs3  owner=root,group=root,fs_mode=1777
         share4                    fs4  owner=root,group=root,fs_mode=1777,rw

ctdb.CIFS> homedir show
                UserName      DomainName
                    usr1           LOCAL
           administrator           VERITASDOMAIN
```

`Note:` You can see that directory level share cannot be migrated to normal clustering mode. Rest of the share and home directory are migrated perfectly.

Migration from `normal` clustering mode to `ctdb` clustering mode.

1. Check the server status to confirm that the current clustering mode is `normal`.

```
ctdb.CIFS> server status
CIFS Status on ctdb_01 : ONLINE
CIFS Status on ctdb_02 : ONLINE

Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Workgroup                 : VERITASDOMAIN
Domain Controller         : veritasdomain.veritas.com
Domain User               : administrator
Clustering Mode           : normal
```

2. List the shares and the homedir.

```
ctdb.CIFS> share show
      ShareName             FileSystem  ShareOptions
         share3                    fs3  owner=root,group=root,fs_mode=1777
         share4                    fs4  owner=root,group=root,fs_mode=1777,rw

ctdb.CIFS> homedir show
                 UserName      DomainName
                     usr1           LOCAL
            administrator           VERITASDOMAIN
```

3. Now stop the CIFS server and change the clustering mode to the `ctdb` mode.

```
ctdb.CIFS> server stop
Stopping CIFS Server.....Success.

ctdb.CIFS> set clustering_mode ctdb
Global option updated. Note: Restart the CIFS server.
```

4. Start the CIFS server in `ctdb` clustering mode and check the server status.

```
ctdb.CIFS> server start

Disabling membership in AD domain VERITASDOMAIN.COM

Enter password for user 'administrator':
Left AD domain VERITASDOMAIN.COM
Uninstalling 'normal' Clustering Mode..........Success.
Installing 'ctdb' Clustering Mode.........Success.
Starting CIFS Server....
The skew of the system clock with respect to Domain controller veritasdomain.veritas.
↪com
(10.209.110.210) is: 9 seconds

Time on Domain controller : Thu Aug 19 17:07:19 2010
Time on this system : Thu Aug 19 17:07:10 IST 2010

If the above clock skew is greater than that allowed by the server,
then the system won't be able to join the AD domain


Trying to become a member in AD domain VERITASDOMAIN.COM ...

Enter password for user 'administrator':
```

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```
Joined domain VERITASDOMAIN.COM OK
..Success.
ctdb.CIFS> server status
CIFS Status on ctdb_01 : ONLINE
CIFS Status on ctdb_02 : ONLINE

Security                   : ads
Domain membership status   : Enabled
Domain                     : VERITASDOMAIN.COM
Workgroup                  : VERITASDOMAIN
Domain Controller          : veritasdomain.veritas.com
Domain User                : administrator
Clustering Mode            : ctdb
```

5. Verify that all shares and home directory are properly migrated to the `ctdb` clustering mode.

```
ctdb.CIFS> share show
      ShareName    FileSystem  ShareOptions
         share1           fs1  owner=root,group=root,fs_mode=1777,rw,full_acl
         share3           fs3  owner=root,group=root,fs_mode=1777
         share4           fs4  owner=root,group=root,fs_mode=1777,rw

ctdb.CIFS> homedir show
                 UserName      DomainName
                     usr1           LOCAL
            administrator           VERITASDOMAIN
```

To unset homedirfs filesystem or filesystemlist:

```
CIFS> set homedirfs
Global option updated. Note: Restart the CIFS server.

CIFS> server status
CIFS Status on va742_01 : ONLINE
CIFS Status on va742_02 : ONLINE

Homedirfs                  :
Security                   : user
Clustering Mode            : normal
```

8.1.5 SEE ALSO

server(1), share(1)

8.2 homedir

8.2.1 SYNOPSIS

`homedir set` *username* [*domainname*] [*fs_name*]

`homedir delete` *username* [*domainname*]

`homedir deleteall`

`homedir show` [*username*] [*domainname*]

8.2.2 DESCRIPTION

The `homedir` commands manage the home directories for the users.

8.2.3 OPTIONS

`homedir set` *username* [*domainname*] [*fs_name*] Set the homedir for the given user. If the home directory does not exist for the given user, this command creates that user's home directory. Use *fs_name* to specify the home directory file system where the user's home directory is created. Otherwise, the user's home directory is created on the home directory file system that has the fewest home directories. Use `storage quota cifshomedir set` to set the quota vaule for the user, otherwise the value set from the `storage quota cifshomedir setdefault` is used to configure the quota limit. If either user or default quota is not set, 0 is taken as the default value, which is treated as an unlimited quota.

`homedir delete` *username* [*domainname*] Delete the home directory of the given user.

`homedir deleteall` Delete all of the home directories on the homedir file system.

`homedir show` [*username*] [*domainname*] Display the homedir usage information.

8.2.4 EXAMPLES

Set the homedir for the given user.

```
CIFS> homedir set usr1 local
CIFS>
```

Delete the home directory of user2.

```
CIFS> homedir delete user2
Do you want to delete homedir for user user2 (y/n): y
Success: Home directory deleted for CIFS local user: user2
```

Display the home directory usage information.

```
CIFS> homedir show
UserName      DomainName
user1         LOCAL
user2         LOCAL
```

8.2.5 SEE ALSO

set(1)

8.3 local

8.3.1 SYNOPSIS

`local user add` *username* [*grouplist*]

`local password` *username*

`local user delete` *username*

`local user show` [*username*]

`local group add` *groupname*

`local group delete` *groupname*

`local group show` [*groupname*]

`local user members` *username grouplist*

8.3.2 DESCRIPTION

The `local` commands add, delete, or display CIFS user(s)/group(s).

8.3.3 OPTIONS

grouplist Comma-separated list of group names.

`local user add` ***username*** **[*grouplist*]** Add the local CIFS user. This user gets authenticated when security is set to user.

`local password` ***username*** Reset password for the local CIFS user.

`local user delete` ***username*** Delete the specified CIFS user.

`local user show` **[*username*]** Show UID and group(s) details of the given username.

`local group add` ***groupname*** Add the local CIFS group.

`local group delete` ***groupname*** Delete the local CIFS group.

`local group show` **[*groupname*]** Show the list of available local CIFS groups. If 'groupname' is specified, it shows all the users belonging to that group.

`local user members` ***username grouplist*** Add the local CIFS user to the given groups in the grouplist.

8.3.4 EXAMPLES

Add a local CIFS group `grp1`.

```
CIFS> local group add grp1
Adding GROUP : grp1
Success: Group grp1 created successfully
```

Create the new CIFS user `usr1` and assign it to existing groups `grp1`.

```
CIFS> local user add usr1 grp1
Input password for usr1.
Enter password:
Re-enter password:
Adding USER : usr1
Success: User usr1 created successfully
```

Reset password for the local CIFS user `usr1`.

```
CIFS> local password usr1
Changing password for usr1.
New password:
Re-enter new password:
Password changed for user: 'usr1'
```

Show the list of local CIFS users.

```
CIFS> local user show
List of Users
-------------
usr1
```

Delete the local CIFS user `usr1`.

```
CIFS> local user delete usr1
Deleting User: usr1
Success: User usr1 deleted successfully
```

8.3.5 SEE ALSO

server(1)

8.4 mapuser

8.4.1 SYNOPSIS

`mapuser add` *CIFSusername domainname NFSusername*

`mapuser remove` *CIFSusername* [*domainname*]

`mapuser show` [*CIFSusername*] [*domainname*]

8.4.2 DESCRIPTION

The `mapuser` commands add, remove, or display the mapping between CIFS and NFS users. Typically a *CIFSusername* is a user coming from the AD server (*domainname*), or a locally created CIFS user on this system (*local*). A *NFSusername* is a user coming from a locally created CIFS user on this system or from a NIS/LDAP server configured in the network section. To make sure user mappings work properly with a NIS/LDAP server, the nsswitch setting may need to be adjusted in the network section.

8.4.3 OPTIONS

`mapuser add` ***CIFSusername domainname NFSusername*** Map CIFS user to NFS user. This mapping is useful when the same file system is accessed using both CIFS and NFS. This functionality can also be used to map multiple users to a single username to share common data. Note: If *** is specified both for the CIFS user and the NFS user, mappings are created automatically between the same name user between CIFS and NFS users on the CIFS server when such user logs on.

`mapuser remove` ***CIFSusername*** **[*domainname*]** Remove the mapping between CIFS and NFS user. It may be possible that the CIFS user may not be able to access its previous data after removing the mapping. Default domain is `local`. Note: If *** is specified, no more mappings are created between the same name CIFS and NFS users, however the already created same name mappings are left in the user mapping list on the CIFS server.

`mapuser show` **[*CIFSusername*]** **[*domainname*]** Show the mapping between the CIFS and the NFS user. If the CIFS username is not specified, it shows all the existing mappings. Default domain name is `local`.

8.4.4 EXAMPLES

Map CIFS user to NFS user.

```
CIFS> mapuser add administrator VERITASDOMAIN.COM nfsusr1
```

Add mappings between all the same name CIFS and NFS users.

```
CIFS> mapuser add * VERITASDOMAIN.COM *
```

Remove the mapping between the CIFS and the NFS user.

```
CIFS> mapuser remove administrator VERITASDOMAIN.COM
```

Remove the mappings between the same name CIFS and NFS users.

```
CIFS> mapuser remove * VERITASDOMAIN.COM
```

Show the mappings between the CIFS and the NFS user.

```
CIFS> mapuser show  administrator VERITASDOMAIN.COM

CIFSUserName    DomainName      NFSUserName
administrator   VERITASDOMAIN   nfsusr1
```

8.4.5 SEE ALSO

share(1)

8.5 server

8.5.1 SYNOPSIS

`server` [start|stop|status]

8.5.2 DESCRIPTION

Start, stop, or display the status of the CIFS resources. All variable settings made using the set command come into effect only when the server is restarted. For example, set can be used to set the security to ads or to a value other than ads, but the server joins or leaves the active directory domain only when the server is restarted after issuing the set command. One exception is the case when the server is already stopped, and later security is set to a value other than ads.

8.5.3 OPTIONS

`server` [start|stop|status] Start, stop, or check the status of the CIFS resources.

8.5.4 EXAMPLES

Starting the CIFS server after all domain-related parameters have been set.

```
CIFS> server start

The skew of the system clock with respect to Domain controller is:  3 seconds

Time on Domain controller : Fri November 30 06:00:03 2008
Time on this system : Fri November 30 06:00:00 PDT 2008

If the above clock skew is greater than that allowed by the server,
then the system won't be able to join the AD domain

Enter password for user 'administrator':

Trying to become a member in AD domain VERITASDOMAIN.COM ...
Joined domain VERITASDOMAIN.COM OK
Starting CIFS Server..
```

Display the status of CIFS server.

```
CIFS> server status
CIFS Status on test_01 : ONLINE
CIFS Status on test_02 : ONLINE

Homedirfs                : fs
Security                 : ads
Domain membership status  : Enabled
Domain                   : VERITASDOMAIN.COM
Domain Controller        : VERITASSERVER
Domain User              : administrator
Clustering Mode          : normal
```

Display the status of the CIFS server if `allowed_trusted_domain` is set to yes.

```
CIFS> server status
CIFS Status on test_01 : ONLINE
CIFS Status on test_02 : ONLINE

Homedirfs                 : fs
Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Domain Controller         : VERITASSERVER
Domain User               : administrator
Clustering Mode           : normal
Trusted Domains           : VERITASDOMAIN1 [VERITASDOMAIN2] VERITASDOMAIN3
```

Note: Domain name with square brackets means this trusted domain is obsolete.

Stop the CIFS server.

```
CIFS> server stop
Stopping CIFS Server.....Success.
```

8.5.5 SEE ALSO

set(1), share(1)

8.6 set

8.6.1 SYNOPSIS

`set allow_trusted_domains` *yes|no* [*trusted_domains*]

`set ntlm_auth` *yes|no*

`set server_signing` *default|auto|mandatory|disable*

`set security` *ads|user*

`set idmap_backend ldap` [*idmap_ou*] [*uid_range*]

`set idmap_backend rid` [*uid_range*]

`set idmap_backend hash`

`set idmap_backend ad` [*uid_range*]

`set homedirfs` [*filesystemlist*] [full_acl]

`set aio_size` *size*

`set data_migration` *yes|no*

`set clustering_mode` *normal|ctdb*

`set max_protocol` *SMB version*

`set min_protocol` *SMB version*

8.6.2 DESCRIPTION

The `set` commands allow the user to set various parameters required for CIFS functioning. To set the Active Directory related options, please refer to command in network ad section.

8.6.3 OPTIONS

`set allow_trusted_domains` ***yes|no*** **[*trusted_domains*]** If allow_trusted_domains is set to `yes`, then multiple domain environments are allowed. If set to `no`, multiple domain environments are not allowed. **Note:** This option cannot be set to yes if security mode is user.

The user can also specify the trusted domains that allow access to the CIFS server when this option is set to yes and the `idmap backend` is set to `rid` or `ad`. By default all the trusted domains are included in the configuration.

Default allow_trusted_domains Value: `no`

`set ntlm_auth` ***yes|no*** If ntlm_auth is set to `no`, then an NTLMv2 response needs to be sent by the client. If set to `yes`, it attempts to authenticate users using the NTLM-encrypted password response.

Default ntlm_auth Value: `yes`

:`set server_signing` ***default|auto|mandatory|disable*** If server_signing is set to off then the server does not requires SMB signing. SMB signing allows the recipient of SMB packets to confirm their authenticity and helps prevent man in the middle attacks against SMB.

Default server_signing Value: `mandatory`

set security *ads|user* Set CIFS security to user (user-level security that a client must log on with a valid username and password) or ads (CIFS server acts as a domain member in an active directory). Before setting the security to `ads`, it is required to set `domain`, `domaincontroller`, and `domainuser`. When the user executes the `server start` command, the CIFS server asks for the password corresponding to the `domainuser` to join in the AD. If using security as `ads`, make sure that the clock of the AD server and the CIFS server is set to the same time. Use the NTP server if possible. If using security as `ads`, make sure that the clock of the AD server and Veritas Access is set to the same time. Use the NTP server if possible.

Default security Value: `user`

set idmap_backend ldap [*idmap_ou*] [*uid_range*] This option tells the CIFS server to obtain SID to UID/GID mappings from a common LDAP backend. The LDAP server used for this has to be configured through the LDAP sub-section in the network section. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`. The `idmap_ou` is optional and set to `cifsidmap`. By default, the user can specify it if the CIFS idmap OrganizationalUnitName(OU) is named differently on the LDAP server. The `uid_range` is optional and set to `10000-1000000` by default.

set idmap_backend rid [*uid_range*] The user can use this option to get the unique SID to UID/GID mappings based on RID and LOW_RANGE_ID. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`.

The `uid_range` is set to `10000-1000000` by default, change it in cases where there are more than 1,000,000 users existing on the local Veritas Access cluster, joined active directory, or trusted domains. **Note:** Do not attempt to modify LOW_RANGE_ID (10000) if there is user data on the CIFS server, it may lead to data access denied for the UID changes.

set idmap_backend hash User can use this option to get the unique SID to UID/GID mappings by the implemented hashing algorithm. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`.

set idmap_backend ad [*uid_range*] User can use this option to get the unique UID/GID from domain by reading id mappings from an AD server that uses RFC2307/SFU schema extensions, this is a readonly idmap backend. Trusted domains are allowed if `allow_trusted_domains` is set to `yes`. A valid user from a domain or a trusted domain should have a UID as well as a GID for the user's primary group.

The `uid_range` is set to `10000-1000000` by default, change it in cases where there are more than 1,000,000 users existing on the local Veritas Access cluster, joined active directory, or trusted domains. **Note:** ID range is adjusted automatically according to the search results of the defined UNIX IDs from the domain after a CIFS server restart.

set homedirfs [*filesystemlist*] [full_acl] Set the given list of file systems to be used for the home directory. All of the home directories of the users are created in these file systems. *filesystem* is a comma-separated list of file system names. It has to be empty to unset the home directory file system. full_acl can be set as an option. Automatic migration of the content of users (that is, users' home directories) from one file system to another file system while switching homedir is not supported. So if an administrator changes homedir from fs1 to fs2, then the home directories of the user do not migrate from fs1 to fs2 automatically.

set aio_size *size* Set aio_fork option. If *size* is not 0, then enable aio_fork and set it as aio read/write size. If it is 0, then disable aio_fork and set 0 to aio read/write size.

set data_migration *yes|no* The user can use this option to enable data migration from a Windows machine by a domain administrator, when ACL information for files or directories should be preserved. The ROBOCOPY command from the Windows Resource Kit Tools is required to complete this task. Set the option to `yes` and restart the CIFS server, and then the data migration mode is enabled. Set the option to `no` after data migration completes for CIFS server security.

set clustering_mode ***normal|ctdb*** Set the clustering mode for the CIFS server. There are two clustering modes available with Veritas Access, *normal* and *ctdb*. Each clustering mode supports all of the three operating modes. The CTDB clustering mode is a different clustered implementation of Veritas Access CIFS, which supports all the features that are supported by normal clustering mode as well as some additional features. Additional features supported in CTDB clustering mode: `Directory-level share support`, `Multi-instance share export of a file system/directory`, and `better load balancing`. Veritas Access supports automated and seamless migration of shares and homedirectories from one mode to another. However while migrating from `CTDB` to `normal` clustering mode, some of the shares get discarded that are not supported in `normal` clustering mode.

set max_protocol ***SMB version*** Set the maximum version of the SAMBA protocol for CIFS.

set min_protocol ***SMB version*** Set the minimum version of the SAMBA protocol for CIFS.

8.6.4 EXAMPLES

After setting all the domain parameters using `network ad set` command, you can set the security to either `ads` if the domain controller is an active directory server, or you can set the security to `domain` if the domain controller is an NT domain controller.

```
CIFS> set security ``ads``
Global option updated. Note: Restart the CIFS server.
```

Note that the system will make a note of these parameters, but it will not attempt to join the specified domain. That happens only when the CIFS server is started the next time using the `server` command.

To unset homedirfs filesystem or filesystemlist:

```
CIFS> set homedirfs
Global option updated. Note: Restart the CIFS server.

CIFS> server status
CIFS Status on va742_01 : ONLINE
CIFS Status on va742_02 : ONLINE

Homedirfs                 :
Security                  : user
Clustering Mode           : normal
```

To set the smb server signing as mandatory:

```
CIFS> set server_signing mandatory
Global option updated. Note: Restart the CIFS server.

CIFS> show
                     Name  Value
                     ----  -----
            netbios name  va742
               ntlm auth  yes
   allow trusted domains  no
          server signing  mandatory
               homedirfs
                aio size  0
           idmap backend  rid:10000-1000000
               workgroup  SAMGWIN
                security  user
```

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```
                Domain  SAMGWIN.LOCAL
           Domain user  administrator
     Domain Controller  dc1
       Clustering Mode  normal
        Data Migration  no
```

Note that the possible values of server signing are default, auto, mandatory and disabled.

8.6.5 SEE ALSO

server(1), share(1)

8.7 share

8.7.1 SYNOPSIS

`share add` *filesystem sharename[@virtual_ip]* [*cifsoptions*]

`share modify` *sharename[@virtual_ip]* [*cifsoptions*]

`share delete` *sharename[@virtual_ip]*

`share show` [*sharename*]

`share allow` *sharename @group1* [*,@group2,user1,user2,...*]

`share deny` *sharename @group1* [*,@group2,user1,user2,...*]

8.7.2 DESCRIPTION

The `share` commands add, delete, or display CIFS shares.

8.7.3 OPTIONS

cifsoptions Comma-separated list of export options for a CIFS share: {ro, rw, guest, noguest, oplocks, nooplocks, full_acl, no_full_acl, enable_encryption, disable_encryption, shadow_copy, hide_unreadable, veto_sys_files, enable_durable_handles, owner=ownername, group=groupname, fs_mode=fspermission, dir_mask=dirpermission, create_mask=filepermission, allow=user+@group, deny=user+@group,max_connections=connections}. The default export options are{ro, noguest, oplocks, no_full_acl, fs_mode=1777, dir_mask=775, create_mask=775, allow=all}.

`share add` ***filesystem sharename[@virtual_ip]*** **[*cifsoptions*]** Export the file system with the given *sharename*. The new options are updated after the command is run. In both clustering modes, you can give the directory path instead of the file system. While specifying the directory path, make sure it always starts with the file system name (Note: not with the mount point `/vx`). If *@virtual_ip* is specified, the share becomes a segregated share and it can only be accessed by that virtual_ip.

`share modify` ***sharename[@virtual_ip]*** **[*cifsoptions*]** Re-export the file system with the given *sharename*. The new options are updated after the command is run. In both clustering modes, you can give the directory path instead of the file system. While specifying the directory path, make sure it always starts with file system name (Note: not with the mount point `/vx`). If *@virtual_ip* is specified, the share becomes a segregated share and it can only be accessed by that virtual_ip.

`share delete` ***sharename[@virtual_ip]*** Unexport the share with the name *sharename*.

`share show` **[*sharename*]** List all the exported resources. If *sharename* is specified, then it prints all the details of the given *sharename*.

`share allow` ***sharename @group1*** **[*,@group2,user1,user2,...*]** Allow only the specified users and groups to access the share. If *all* is specified, then default access restrictions are restored on the share. User or group separator can be a comma or a plus symbol, double backslash should be added between the domain name and the user or group in cases where the allowed one comes from the trusted domain.

`share deny` ***sharename @group1*** **[*,@group2,user1,user2,...*]** Deny the specified users and groups to access the share. If *all* is specified, then all the users and groups are not able to access the share. User or group separator can be a comma or a plus symbol, double backslash should be added between the domain name and the user or group in cases where the denied one comes from the trusted domain.

8.7.4 EXAMPLES

Export the file system `fs1` with name `share1`.

```
CIFS> share add fs1 share1
Exporting CIFS filesystem : share1 ...
```

Display the list of shares exported over CIFS.

1. List all shares exported over CIFS.

```
CIFS> share show
ShareName    FileSystem  ShareOptions
share1       fs1         owner=root,group=root
```

2. Detailed list of shares in normal mode. For non-segregated shares, it includes details such as the VIP address used as its MSDFS referral IP. Segregated shares do not have MSDFS referral IP associated with them.

```
CIFS> share show share1
ShareName  VIP Address
=========  =============
share1     10.209.103.82

CIFS> cifs share show share2@10.209.103.82
ShareName             VIP Address
====================  ===========
share2@10.209.103.82
```

Unexport the share with the name `share1`.

```
CIFS> share delete share1
Unexporting CIFS share : share1 ....
```

Allow user `user1` and group `group1` to access the share `share1`.

```
CIFS> share allow share1 user1,@group1
Warning: Modifying an already existing share.
.........Done
```

Allow trusted domain user `user1` and group `group1` to access the share `share1`.

```
CIFS> share allow share1 domain\\\\\\\\user1,@domain\\\\\\\\group1
Warning: Modifying an already existing share.
.........Done
```

Deny user `user1` and group `group1` to access the share `share1`.

```
CIFS> share deny share1 user1,@group1
Warning: Modifying an already existing share.
.........Done
```

Deny trusted domain user `user1` and group `group1` to access the share `share1`.

```
CIFS> share deny share1 domain\\\\\\\\user1,@domain\\\\\\\\group1
Warning: Modifying an already existing share.
.........Done
```

Exporting a directory as a CIFS share, you should switch to the `ctdb` clustering mode.

1. Check the status of the CIFS server to confirm that the current clustering mode is `ctdb`.

```
ctdb.CIFS> server status
CIFS Status on ctdb_01 : ONLINE
CIFS Status on ctdb_02 : ONLINE

Security                  : ads
Domain membership status  : Enabled
Domain                    : VERITASDOMAIN.COM
Workgroup                 : VERITASDOMAIN
Domain Controller         : veritasdomain.veritas.com
Domain User               : administrator
Clustering Mode           : ctdb
```

2. Export a directory as a CIFS share.

```
ctdb.CIFS> share add fs1/dir1 share1 rw,full_acl
Exporting CIFS filesystem : share1 ..Success.
```

3. List the shares.

```
ctdb.CIFS> share show
ShareName     FileSystem  ShareOptions
share1        fs1/dir1    owner=root,group=root,fs_mode=755,rw,full_acl
```

4. If a directory name contains a space, then it should be entered using double quotes (“). For example:

```
ctdb.CIFS> share add "fs1/dir2 a" share2 rw
Exporting CIFS filesystem : share2 ..Success.

ctdb.CIFS> share show
ShareName     FileSystem  ShareOptions
share2        fs1/dir2 a  owner=root,group=root,fs_mode=755,rw
share1        fs1/dir1    owner=root,group=root,fs_mode=755,rw,full_acl
```

5. Modifying an existing share.

```
ctdb.CIFS> share modify share2 ro,full_acl
Warning: Modifying an already existing share.
...Done

ctdb.CIFS> share show
ShareName     FileSystem  ShareOptions
share2        fs1/dir2 a  owner=root,group=root,fs_mode=1777,ro,full_acl
share1        fs1/dir1    owner=root,group=root,fs_mode=755,rw,full_acl
```

Exporting a directory to provide read access to all; but write access to the limited set of users that need to be authenticated.

```
ctdb.CIFS> share add "fs1/dir2 b" share1 rw,noguest
Exporting CIFS filesystem : share1 ..Success.

ctdb.CIFS> share add "fs1/dir2 b" share2 ro,guest
Exporting CIFS filesystem : share2 ..Success.

ctdb.CIFS> share show
ShareName     FileSystem  ShareOptions
```

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```
share1          fs1/dir2 b  owner=root,group=root,fs_mode=755,rw,noguest
share2          fs1/dir2 b  owner=root,group=root,fs_mode=755,ro,guest
```

8.7.5 SEE ALSO

server(1)

8.8 show

8.8.1 SYNOPSIS

`show`

8.8.2 DESCRIPTION

The `show` command displays the list of global options and their values. These are the settings that have been configured primarily with the `set` command.

8.8.3 EXAMPLES

Display the list of global options.

```
CIFS> show

                 Name  Value
                 ----  -----
          netbios name  test
             ntlm auth  yes
 allow trusted domains  no
        server signing  mandatory
             homedirfs
              aio size  0
         idmap backend  rid:10000-1000000
             workgroup  VERITASDOMAIN
              security  ads
                Domain  VERITASDOMAIN.COM
           Domain user  administrator
     Domain Controller  VERITASSERVER
       Clustering Mode  normal
          Max Protocol  SMB3
          Min Protocol  LANMAN1
```

8.8.4 SEE ALSO

set(1)

9 Cluster Commands

9.1 cluster

9.1.1 SYNOPSIS

`reboot` *nodename*

`show` [`currentload`]

`shutdown` *nodename*

`add` *ipaddr1* [, *ipaddr2*,...]

`del` *nodename1* [, *nodename2*,...]

`start` *nodename*

`stop` *nodename* [*force*]

`lockdown-mode get`

`lockdown-mode set` *mode* [`minval`] [`maxval`]

`compclock show`

9.1.2 DESCRIPTION

The cluster commands allow you to view the nodes in the cluster and their states. You can add, remove, reboot or shutdown nodes in the cluster configuration. You can also upgrade the disk configuration versions of the Veritas Access applications.

9.1.3 OPTIONS

nodename The node on which the operation takes place. A value of `all` indicates the operation takes place on all of the nodes in the cluster. The value `all` does not apply to the `del` command.

ipaddr The accessible IP address of the node to be added to the cluster.

`reboot` ***nodename*** Reboot a node or all of the nodes in the cluster. To reboot a node, specify the *nodename* as it is displayed in the `cluster show` command. To reboot all the nodes in the cluster use `all` for *nodename*.

show Display the nodes in the cluster, their states, CPU load, and network load, during the past 15 minutes. It also displays information about nodes that are being added to the cluster, deleted from the cluster and nodes on which upgrade is in progress.

show [*currentload*] If you specify currentload, the load statistics show the CPU load, and network load for the 5 seconds after the command is issued.

shutdown *nodename* Shut down a node or all of the nodes in the cluster. To shut down a node, specify the *nodename* as it is displayed in the `cluster show` command. To shut down all the nodes in the cluster, use `all` for *nodename*.

add *ipaddr1* [, *ipaddr2*,...] Add one or more nodes into the cluster. The *ipaddr* should be known before `add` operation. The cluster must be running and the new nodes must have the required OS installed.

del *nodename1* [, *nodename2*,...] Delete one or more nodes from the cluster. The specified nodes must be in the cluster but can not be the console node. You cannot delete all of the running nodes in the cluster. After a node is successfully deleted, the node is still accessible at the IP address until the node is rebooted. After the reboot, the node frees the used IP resources and is assigned to the original ip.

:start *nodename* Start a cluster node

:stop *nodename* [force] Stop a cluster node Use the `force` option to force stop the running nodes in `cluster stop all` operation if some nodes are not reachable.

lockdown-mode get Display the lockdown mode information using Veritas Access applications.

lockdown-mode set *mode* [minval] [maxval] Set the lockdown mode and min, max retention.

compclock show Show the date/time based on compliance clock

9.1.4 EXAMPLES

Display the current state of all the nodes in the cluster and their loads, during the past 15 minutes.

```
Cluster> show
Node            State      CPU(15 min)    pubeth0(15 min)    pubeth1(15 min)
                                 %        rx(MB/s) tx(MB/s)  rx(MB/s) tx(MB/s)
----            -----      -----------   -------- --------  -------- --------
test_1          RUNNING          1.35       0.00     0.00      0.00     0.00
test_2          RUNNING          1.96       0.00     0.00      0.00     0.00
test_3          FAULTED

Nodes in Transition
Node/IP                    Operation           State      Description
-------                    ---------           -----      -----------
10.200.58.202              Add node            FAILED     Installing packages
test_6                     Delete node         ONGOING    Removing node
test_4,test_5              Rolling upgrade     ONGOING    Rolling upgrade phase 2
```

Display the CPU and network loads collected for the next 5 seconds.

```
Cluster> show currentload
Node            State      CPU(5 sec)     pubeth0(5 sec)     pubeth1(5 sec)
                                 %        rx(MB/s) tx(MB/s)  rx(MB/s) tx(MB/s)
----            -----      -----------   -------- --------  -------- --------
test_1          RUNNING          1.35       0.00     0.00      0.00     0.00
test_2          RUNNING          1.96       0.00     0.00      0.00     0.00
test_3          FAULTED
```

Shut down a node in the cluster.

```
Cluster> shutdown test_4
Stopping Cluster processes on test_4
Sent shutdown command to test_4. SSH sessions to test_4 may terminate.
```

Shut down all nodes in the cluster.

```
Cluster> shutdown all
Stopping Cluster processes on all
SSH sessions to all nodes may terminate.
Sent shutdown command to test_2
Sent shutdown command to test_3
Sent shutdown command to test_4
Sent shutdown command to test_1
```

Reboot a node in the cluster.

```
Cluster> reboot test_4
Stopping Cluster processes on test_4
Sent reboot command to test_4. SSH sessions to test_4 may terminate.
```

Reboot all nodes in the cluster.

```
Cluster> reboot all
Stopping Cluster processes on all
SSH sessions to all nodes may terminate.
Sent reboot command to test_2
Sent reboot command to test_3
Sent reboot command to test_4
Sent reboot command to test_1
```

To Start a Cluster Node Named `visa1_02`

```
Cluster> start visa1_02
100% [#] Access Server Start up completed Successfully..
```

To Stop a cluster node Named `visa1_02`

```
Cluster> stop visa1_02
100% [#] Shutting down Access Server services completed Successfully..
```

Display lockdown configuration of cluster

```
Cluster> lockdown-mode get
Configuration  Value
=============  ==========
Lockdown Mode  compliance
Min Retention  3600
Max Retention  1892160000
```

Change lockdown configuration of cluster

```
va-nso> cluster lockdown-mode set compliance 3600 1892160000
ACCESS service SUCCESS V-493-10-0 Lockdown config updated successfully..
va-nso>
```

9.1.5 SEE ALSO

add(1), del(1), start(1), stop(1), reboot(1), show(1), shutdown(1), lockdown(1)

9.2 add

9.2.1 SYNOPSIS

`add` *ipaddr1* [, *ipaddr2*,...]

9.2.2 DESCRIPTION

The cluster `add` command adds one or more nodes into the running cluster. Provide the IP address of each new node. To specify multiple nodes, separate the IP addresses with commas. The cluster needs to be running and the new nodes must have the required OS installed.

9.2.3 EXAMPLES

Add a node 10.10.10.10 into the cluster.

```
Cluster> add 10.10.10.10
```

Add 2 nodes 10.10.10.10,10.10.10.11 into the cluster.

```
Cluster> add 10.10.10.10,10.10.10.11
```

9.2.4 SEE ALSO

del(1), reboot(1), show(1), shutdown(1)

9.3 del

9.3.1 SYNOPSIS

`del` *nodename1* [, *nodename2*,. . .]

9.3.2 DESCRIPTION

The cluster `del` command deletes one or more nodes from current cluster. The specified nodes must be in the cluster but cannot be the console node. You cannot delete all the running nodes in the cluster.

After a node is successfully deleted, the node is still accessible at the IP address until the node is rebooted. After the reboot, the node frees the used IP resources and is assigned to the original IP.

9.3.3 EXAMPLES

Delete a node test_02 from the cluster.

```
Cluster> del test_02
```

Delete 2 nodes test_02,test_03 from the cluster.

```
Cluster> del test_02,test_03
```

9.3.4 SEE ALSO

add(1), reboot(1), show(1), shutdown(1)

9.4 reboot

9.4.1 SYNOPSIS

`reboot` *nodename*

9.4.2 DESCRIPTION

The cluster `reboot` command reboots a node or all of the nodes in the cluster. To reboot a node in the cluster, specify the *nodename* as it is displayed in the `cluster show` command. To reboot all of the nodes in the cluster, use `all` for *nodename*.

9.4.3 OPTIONS

nodename Node on which the operation takes place. A value of `all` indicates the operation takes place on all nodes of the cluster.

`reboot` ***nodename*** Reboots a node or all of the nodes in the cluster. To reboot a node in the cluster, specify the *nodename* as it is displayed in the `cluster show` command. To reboot all of the nodes in the cluster, use `all` for *nodename*.

9.4.4 EXAMPLES

Reboots a node in the cluster.

```
Cluster> reboot test_4
Stopping Cluster processes on test_4
Sent reboot command to test_4. SSH sessions to test_4 may terminate.
```

Reboots all of the nodes in the cluster.

```
Cluster> reboot all
Stopping Cluster processes on all
SSH sessions to all nodes may terminate.
Sent reboot command to test_2
Sent reboot command to test_3
Sent reboot command to test_4
Sent reboot command to test_1
```

9.4.5 SEE ALSO

show(1), shutdown(1)

9.5 replace

9.5.1 SYNOPSIS

`replace` *node_name avahi_ip mgmt_ip* [*ipmi_ip*]

9.5.2 DESCRIPTION

The cluster `replace` command replaces a node in the running cluster with another node that has the same hardware and number of disks.You have to provide the name of the node which is to be replaced along with the public IP of destination node. Before replacing the node, you have to manually set a password-less SSH on the new node using its public IP. If the operation fails at any point in time, you can re-trigger the operation using the same command again after fixing the issues, if any. After the replace operation is triggered successfully, you can use the `cluster show` command to check the status of replacement.

9.5.3 EXAMPLES

Replace a faulted node thinkpad-02 in the cluster with a node having 169.254.53.216 as Avahi IP.

```
Cluster> show

Node          State    CPU     eth4(15 min)        eth5(15 min)
                       %       rx(MB/s) tx(MB/s)   rx(MB/s) tx(MB/s)
===========  =======  ======  ================     ================
thinkpad-03  RUNNING  40.098  0.68     0.79       0.73     0.00
thinkpad_02  EXITED   -       -                   -
thinkpad-04  RUNNING  7.258   0.29     0.00       0.72     0.00


Cluster> replace thinkpad-02 169.254.53.216 10.84.144.239
ACCESS Cluster SUCCESS V-493-10-0 Node thinkpad-02 replacement successfully triggered
```

Check the status of replace node operation.

```
Cluster> show

Node          State    CPU       eth4(15 min)        eth5(15 min)
                       %       rx(MB/s) tx(MB/s)   rx(MB/s) tx(MB/s)
===========  =======  ======  ===============     ================
thinkpad-03  RUNNING  14.488  0.09     0.00       0.11     0.08
thinkpad-04  RUNNING  24.586  0.12     0.00       0.12     0.00

Node replacement
================
Node          Operation                State    Description
===========  =======================  =======    =======================
thinkpad-02  Tracking rebuild status  started  Replace node is running
```

9.5.4 SEE ALSO

add(1), del(1), reboot(1), show(1), shutdown(1)

9.6 show

9.6.1 SYNOPSIS

`show` [currentload]

9.6.2 DESCRIPTION

The cluster show command displays the nodes in the cluster, their states, CPU load, and network load during the past 15 minutes. It also displays information about nodes that are being added to the cluster, deleted from the cluster, replaced in the cluster, and nodes on which upgrade is in progress. The rx and tx columns display statistics of received and transmitted bytes respectively.

9.6.3 OPTIONS

`show` [*currentload*] If you specify currentload, the load statistics show the CPU load, and network load for the 5 seconds after the command is issued.

9.6.4 EXAMPLES

Display the current state of all of the nodes in the cluster and their loads during the past 15 minutes.

```
Cluster> show

Node            State      CPU(15 min)    pubeth0(15 min)    pubeth1(15 min)
                                %        rx(MB/s) tx(MB/s)  rx(MB/s) tx(MB/s)
----            -----      -----------   -------- --------  -------- --------
test_1          RUNNING          1.35       0.00     0.00      0.00     0.00
test_2          RUNNING          1.96       0.00     0.00      0.00     0.00
test_3          FAULTED

Nodes in Transition
Node/IP                    Operation           State      Description
-------                    ---------           -----      -----------
10.200.58.202              Add node            FAILED     Installing packages
test_6                     Delete node         ONGOING    Removing node
test_4,test_5              Rolling upgrade     ONGOING    Rolling upgrade phase 2
```

Cluster show output when a node in cluster is being replaced.

```
Cluster> show

Node         State    CPU     eth4(15 min)       eth5(15 min)
                      %       rx(MB/s) tx(MB/s)  rx(MB/s) tx(MB/s)
==========   =======  ======  ================== ================
test-03      RUNNING  13.84   4.61     0.00      4.61    0.00
test-02      RUNNING  50.472  4.61     0.00      4.61    0.00
test-01               -       -                  -

Node replacement
================
Node         Operation          State      Description
```

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```
==========  =================  =======    ======================
test-01     Adding a new node  started    Replace node is running

Nodes in Transition
===================
Node/IP       Operation  State      Description
============  =========  =======    ============================================
10.209.89.11  Add Node   ONGOING    Stage 3 of 7 : Configure new node(s) network
```

Show the CPU and network loads collected for the next 5 seconds.

```
Cluster> show currentload

Node            State      CPU(5 sec)     pubeth0(5 sec)     pubeth1(5 sec)
                               %         rx(MB/s) tx(MB/s)  rx(MB/s) tx(MB/s)
----            -----      ----------   -------- --------  -------- --------
test_1          RUNNING          1.35       0.00     0.00      0.00     0.00
test_2          RUNNING          1.96       0.00     0.00      0.00     0.00
test_3          FAULTED
```

9.6.5 SEE ALSO

reboot(1), shutdown(1)

9.7 shutdown

9.7.1 SYNOPSIS

`shutdown` *nodename* [verify={true|false|vxdefault}]

9.7.2 DESCRIPTION

The cluster `shutdown` command shuts down the nodes in the cluster.

9.7.3 OPTIONS

nodename Node on which the operation takes place. A value of `all` indicates the operation takes place on all of the nodes in the cluster.

verify={true|false|vxdefault} Tell command to return only after shutdown of node is completed.

`shutdown` *nodename* Shut down a node or all of the nodes in the cluster. To shut down a node in the cluster, specify the *nodename*, as it appears in the `cluster show` command. To shut down all of the nodes in the cluster, use `all` for *nodename*.

9.7.4 EXAMPLES

Shut down a node in the cluster.

```
Cluster> shutdown test_4
Stopping Cluster processes on test_4
Sent shutdown command to test_4. SSH sessions to test_4 may terminate.
```

Shut down all of the nodes in the cluster.

```
Cluster> shutdown all
Stopping Cluster processes on all
SSH sessions to all nodes may terminate.
Sent shutdown command to test_2
Sent shutdown command to test_3
Sent shutdown command to test_4
Sent shutdown command to test_1
```

9.7.5 SEE ALSO

reboot(1), show(1)

9.8 start

9.8.1 SYNOPSIS

`start` *node_name*

9.8.2 DESCRIPTION

The cluster start command starts the given cluster node

9.8.3 EXAMPLES

To Start a cluster node, `visa1_02`

```
Cluster> start visa1_02
100% [#] Access Server Start up completed Successfully..
```

9.8.4 SEE ALSO

add(1), del(1), reboot(1), show(1), shutdown(1), replace(1), stop(1)

9.9 stop

9.9.1 SYNOPSIS

`stop` *node_name* [*force*]

9.9.2 DESCRIPTION

The cluster stop command stops the given cluster node. Use the `force` option to force stop the running nodes in `cluster stop all` operation if some nodes are not reachable.

9.9.3 EXAMPLES

To stop a cluster node, `visa1_02`

```
Cluster> stop visa1_02
100% [#] Shutting down Access Server services completed Successfully..
```

9.9.4 SEE ALSO

add(1), del(1), reboot(1), show(1), shutdown(1), replace(1), start(1)

10 History Commands

10.1 history

10.1.1 SYNOPSIS

`history` [*username*] [*number_of_lines*]

10.1.2 DESCRIPTION

The `history` command displays the commands executed by the user in the following format:

```
<time stamp>  <status> <message> <command>
<time stamp>    : MM-DD-YYYY HH:MM
<status>        : Success | Error | Warning
<message>       : Description of the command.
<command>       : Actual command executed by the user.
```

10.1.3 OPTIONS

username Display the history of the specified user name.

number_of_lines Display only the most recent number of lines specified.

10.1.4 EXAMPLE

Display the history of the user who is logged in.

```
    test> history
Username      : primary
Privileges    : Primary
Time              Status   Message                                  Command
08-03-2014 13:32 Success  cluster show successful                  (cluster show
↪       )
08-03-2014 13:39 Success  add 172.25.108.149 successful            (cluster add 172.
↪25.108.149)
```

(continues on next page)

(continued from previous page)

```
08-03-2014 13:39 Success  cluster show successful                (cluster show
↪       )
08-03-2014 14:16 Success  ip addr show successful                (network ip addr
↪show     )
08-03-2014 14:30 Success  bond> create                           (network bond
↪create pubeth0,pubeth1 0)
08-04-2014 14:33 Success  ip addr show successful                (network ip addr
↪show     )
```

Display the history of user `usr1`. Only the `primary` administrator can see the history of another user.

```
    test> history usr1
Username      : usr1
Privileges    : System Administrator
Time             Status   Message                                 Command
08-05-2014 10:24 Success  cluster show successful                 (cluster show
↪       )
08-05-2014 10:26 Success  ip addr show successful                 (network ip addr
↪show     )
08-05-2014 10:27 Success  bond> remove bond                       (network bond
↪remove bond0)
08-05-2014 10:28 Success  ip addr show successful                 (network ip addr
↪show     )
08-05-2014 10:28 SUCCESS  Disk list detail completed              (storage disk list
↪detail )
```

Display the last 7 commands executed by the user `primary`.

```
    test> history primary 7
Username      : primary
Privileges    : Primary
Time             Status   Message                                 Command
08-04-2014 08:28 Success  add 172.25.108.149 successful           (cluster add 172.
↪25.108.149)
08-04-2014 11:36 Success  cluster show successful                 (cluster show
↪       )
08-04-2014 14:18 Success  ip addr show successful                 (network ip addr
↪show     )
08-04-2014 07:04 Error    No time zone found with name: sho       (clock timezone
↪sho       )
08-05-2014 07:06 SUCCESS  Listed pools                            (storage pool list
↪       )
08-05-2014 07:06 SUCCESS  Listed file systems.                    (storage fs list
↪       )
08-05-2014 07:11 SUCCESS  Created simple file system fs1          (storage fs create
↪simple fs1 1g p1)
```

11

Lockdown Commands

=== lockdown ===

11.1 SYNOPSIS

```
lockdown-mode get
lockdown-mode set
```

11.2 DESCRIPTION

Lockdown modes feature gives appliance users options for managing WROM data. The data will be protected from deletion and updating, WORM and retention features will be enabled as per mode. Lockdown mode helps to protect data from internal and external threats.

11.3 OPTIONS

lockdown-mode get Display the lockdown configuration information such as mode, Minimum Retention and Maximium Retention.

lockdown-mode set *mode* [minval] [maxval]: Set lockdown configuration such as mode, Minimum Retention and Maximium Retention. Minimum Retention and Maximium Retention in rage of 3600 – 1892160000 (in Sec)

11.4 EXAMPLES

Display lockdown configuration of cluster

```
Cluster> lockdown-mode get
Configuration  Value
=============  ==========
Lockdown Mode  compliance
Min Retention  3600
Max Retention  1892160000
```

Set lockdown configuration of cluster

```
va-nso> cluster lockdown-mode set compliance 3600 1892160000
ACCESS service SUCCESS V-493-10-0 Lockdown config updated successfully..
va-nso>
```

12

Network Commands

12.1 network

12.1.1 SYNOPSIS

`dns show`

`dns enable`

`dns disable`

`firewall status`

`firewall enable`

`firewall disable`

`firewall rule list`

`firewall rule add` *iptype flter interface client protocols* [*sport*] [*dport*] [*match_state*]

`firewall rule remove` *iptype flter interface client protocols* [*sport*] [*dport*] [*match_state*]

`dns set domainname` *domainname*

`dns set nameservers` *nameserver1* [*nameserver2*] [*nameserver3*]

`dns clear domainname`

`dns clear nameservers`

`show`

`nis show` [users|groups|netgroups]

`nis disable`

`nis enable`

`nis set servername` *servername*

`nis set domainname` [*domainname*]

`nsswitch show`

`nsswitch conf` { group|hosts|netgroup|passwd|shadow }

value1 value2 value3

`ip link set` *nodename device* { up | down | mtu *MTU* }

`ip link show` [*nodename*] [*device*]

`ip addr modify` *oldipaddr newipaddr* { *netmas* | *prefix* } [*device*] [*fqdns*]

`ip addr del` *ipaddr*

`ip addr add` *ipaddr* { *netmask* | *prefix* } *type* [*device*] [*nodename*] [*fqdns*]

`ip addr online` *ipaddr nodename*

`ip addr show`

`ip route show` [*nodename*] [*memory*|*config*]

`ip route add` *nodename ipaddr* { *netmask* | *prefix* } via *gateway* [dev *device*] [*scope*]

`ip route del` *nodename ipaddr* { *netmask* | *prefix* } via *gateway* [dev *device*] [*scope*]

`ad enable`

`ad disable`

`ad show` [*status*] [*domain*] [*netbios name*] [*domaincontroller*] [*workgroup*] [*domainuser*]

`ad set` *domain domaincontroller workgroup domainuser*

`ad unset`

`ldap enable`

`ldap disable`

`ldap show` [users|groups|netgroups]

`ldap set` { server|port|basedn|binddn|ssl|rootbinddn|
users-basedn|groups-basedn|netgroups-basedn|password-hash } *value*

`ldap get` { server|port|basedn|binddn|ssl|rootbinddn|
users-basedn|groups-basedn|netgroups-basedn|password-hash }

`ldap clearall`

`bond show`

`bond create` *interfacelist mode*

`bond remove` *bondname*

`netgroup add` *groupname memberlist*

`netgroup delete` *groupname* [*memberlist*]

`netgroup show` [*groupname*]

`vlan show`

`vlan add` *device vlan_id*

`vlan del` *vlan_device*

`device list` *nodename*

`device ipmonitor show`

`swap` *interface1 interface2* [*nodename*]

`krb standalone set` *kdc_server kerberos_realm keytab_file*

`krb standalone unset`

`krb standalone show`

12.1.2 DESCRIPTION

These network commands are used to configure DNS, NIS, LDAP client, IP, firewall and check the status.

12.1.3 OPTIONS

`iptype` The type of the network IP can be IPv4 or IPv6. Allowed values are ipv4/ ipv6/ ipv4,ipv6.

`flter` Iptables chain filter type. Allowed value are INPUT or OUTPUT.

`interface` Name of the network interface by which the packet will be received. If you enter "ALL" , an iptable entry is added for all public interfaces which are in control of the product.

`client` Source IP from which the packet is received. *ALL* should be entered to apply the rule to all sources.

`protocols` Allowed values are *tcp*, *udp*, *icmp* and *tcp,udp*. When *tcp,udp* is given, two separate rules are added, one for each protocol.

`sport` Port through which the packet leaves the machine. The ALL option applies the rule to all the ports. NONE option is used to unspecify a port or enter specific port number.

Note : sport and dport cannot both have NONE value at the same time.

`dport` Port through which the packet is received. The ALL option applies the rule to all the ports. NONE option is used to unspecify a port or enter specific port number.

Note : sport and dport cannot both have NONE value at the same time.

`match_state` Match state for the connection. Enter NONE if you do not want to specify any state. Examples of match state are NEW/ ESTABLISHED/ RELATED.

`dns show` Display the current DNS settings. Shows whether DNS is enabled or disabled, and the current values for the domain name and name servers.

`dns enable` Enable DNS usage.

`dns disable` Disable DNS usage.

`firewall status` Display whether the current firewall status is enabled or disabled.

`firewall enable` Enable the firewall setting to allow specific IPs to connect to the ports while blocking other connections.

`firewall enable` Disable the firewall setting.

`firewall rule list` List the firewall rules set on the cluster nodes by the user.

`firewall rule add` ***iptype flter interface client protocols*** **[*sport*] [*dport*] [*match_state*]** Add the iptable rule to the current iptable configuration.

`firewall rule remove` ***iptype flter interface client protocols*** **[*sport*] [*dport*] [*match_state*]** Remove the rule from the current iptable configuration.

`dns set domainname` ***domainname*** Set the domain name of the server to *domainname*. To clear the domain name, use `dns clear domainname`.

dns set nameservers *nameserver1* **[***nameserver2***] [***nameserver3***]** Modify the DNS name servers that are used. Specify the name servers in the order in which the name servers are to be used. Specify up to three name servers. To clear the name servers list, use the `dns clear nameservers` command.

dns clear domainname Clear the domain name used by DNS.

dns clear nameservers Clear the name servers list used by DNS.

show Display the network configuration and statistics on all the available nodes.

nis show Display the NIS server name and domain name.

nis show users Display NIS users that are available in the NIS database.

nis show groups Display NIS groups that are available in the NIS database.

nis show netgroups Display NIS netgroups that are available in the NIS database.

nis disable Disable the NIS clients on all the nodes.

nis enable Enable NIS clients on all the nodes.

nis set servername *servername* Set the NIS server name on all the nodes.

nis set domainname [*domainname***]** Set the NIS domain name on all the nodes.

nsswitch show Display the name service switch configuration.

nsswitch conf { group|hosts|netgroup|passwd|shadow } *value1 value2 value3* Configure the method for the name service switch lookup process.

ip link set *nodename device* **{ up | down | mtu** *MTU* **}** Change device attributes. Use `all` to change the attributes on all nodes.

ip link show [*nodename***] [***device***]** Display device attributes.

ip addr modify *oldipaddr newipaddr* **{** *netmask* **|** *prefix* **} [***device***] [***fqdns***]** Modify an IP address used by the cluster.

ip addr del *ipaddr* Delete an IP address.

ip addr add *ipaddr* **{** *netmask****|******prefix* **}** *type* **[***device***] [***nodename***] [***fqdns***]** Add a new IP address. In a multi-subnet environment, add the IPs of a specific subnet and then configure the routes for that subnet.

ip addr online *ipaddr nodename* Bring an IP address used by the cluster online on any running node in the cluster.

ip addr show Display IP addresses and their properties.

ip route show [*nodename***] [***memory***|***config***]** Display route entries in the routing table or global config for the cluster.

ip route add *nodename ipaddr* **{** *netmask* **|** *prefix* **} via** *gateway* **[dev** *device***] [***scope***]** Add a new route to *ipaddr* destination with *netmask* via *gateway* through *device* on node *nodename*. *scope* parameter can be *local* or *global*. To configure a cluster in a multi-subnet environment, ensure that the IPs of the different subnets are already added to the reachable devices. In a multi-subnet configuration, you are required to select one of the subnets and the gateway as the global gateway. This global gateway is added to the main table and is used as the default route for any connection originating from the cluster to any outside network. There can be only one gateway with *global* scope. When the route is configured with *device* as *any*, the route is added with the reachable device. If *device* is specified with scope as *global*, the route is added with the specified device. Node specific gateway route with *global* scope is not supported.

The *local* scope routes are IP/subnet specific and the local gateway route is used for the connections originating and designated from the subnet's IP. The gateway routes with *local* scope do not act as default gateway on a cluster. Local gateway route when configured with *device* as *any* adds the route to all the local routing tables with matching subnet. If *device* is specified with value other than *any*, the route does not get added to other local routing tables even with matching subnets. Node specific routes are allowed with *local* scope. While adding *global* default gateway route, it is recommended to add a subsequent *local* route with the same parameters.

In a multi-subnet environment of 'n' (where n>2) subnets, you should configure one gateway route for *global* scope and 'n' gateway routes for the all the subnets with scope *local*.

The following information gives the result for possible combinations of parameters such as node, device and scope for the route add and route delete command.

1) Node = all ; Device = any ; Scope = global; Result = The route gets added/deleted to/from main routing table with the reachable device.
2) Node = all ; Device = Specific; Scope = global; Result = The route gets added/deleted to/from main routing table with the specified device.
3) Node = Specific; Device = any ; Scope = global; Result = Error: Route operations are not supported for a specific node.
4) Node = Specific; Device = Specific; Scope = global; Result = Error: Route operations are not supported for a specific node.
5) Node = all ; Device = any ; Scope = local ; Result = The route gets added/deleted to/from local routing table of all matching subnets with all devices on all the nodes.
6) Node = all ; Device = Specific; Scope = local ; Result = The route gets added/deleted to/from local routing table of all matching subnets with specifc device on all the nodes.
7) Node = Specific; Device = any ; Scope = local ; Result = Error: Route operations are not supported for a specific node.
8) Node = Specific; Device = Specific; Scope = local ; Result = Error: Route operations are not supported for a specific node.

ip route del ***nodename ipaddr*** **{** ***netmask*** **|** ***prefix*** **}** **via** ***gateway*** **[dev** ***device*****] [***scope***]** Delete a route to *ipaddr* destination with *netmask* via *gateway* through *device* on node *nodename*. *scope* parameter can be *local* or *global*. Scope parameter works as stated above in *ip route add* command.

ad enable Enable the AD client to use Active Directory for authentication.

ad disable Disable the AD client so that Active Directory is not used for authentication.

ad show Display the AD client configuration.

ad set ***domain domaincontroller workgroup domainuser*** Set the AD client's domain, domaincontroller, workgroup and domainuser. A domain controller can either be an Active Directory server or a Windows NT 4.0 domain controller. A domainuser is the username which is used for authentication in the domain join operation.

ad unset Clear the AD client configuration.

ldap enable Enable the LDAP client, and configure the Pluggable Authentication Module (PAM) configuration files to use LDAP.

ldap disable Disable the LDAP client, and configure PAM configuration files not to use LDAP.

ldap show Show the LDAP client configuration.

ldap show users Show LDAP users that are available in the NSS database.

ldap show groups Show LDAP groups that are available in the NSS database.

ldap show netgroups Show LDAP netgroups that are available in the NSS database.

ldap set server ***value*** Set the LDAP server's host name or IP address. This setting is mandatory.

ldap set port ***value*** Set the LDAP server's port. Default value is 389.

ldap set basedn ***value*** Set the LDAP base Distinguished Name (DN). This setting is mandatory.

ldap set ssl { on|off } Set LDAP over Secure Sockets Layer (SSL) on or off. Set to "on" if your LDAP server supports SSL. Certificates required for SSL are auto-negotiated with the LDAP server during session establishment. The default value is "off." This setting is mandatory.

ldap set binddn ***value*** Set the LDAP bind DN and its password. This DN is used to bind with the LDAP server for read access. For authentication, read access to most of the attributes is required. This setting is mandatory.

ldap set rootbinddn ***value*** Set the LDAP root bind DN and its password. This DN is used to bind with the LDAP server for write access. This setting is not required for authentication. To change some attributes of an LDAP entry, this DN is required. For example, changing a user's password by root (uid=0) user requires System Administrator privileges to write into the LDAP directory. This setting is optional.

ldap set users-basedn ***value*** Set the LDAP users base DN. This DN is used by the authentication system (PAM and NSS) to search LDAP users. This setting is mandatory.

ldap set groups-basedn ***value*** Set the LDAP groups base DN. This DN is used by the authentication system (PAM and NSS) to search the LDAP groups. This setting is mandatory.

ldap set netgroups-basedn ***value*** Set the LDAP netgroups base DN. This DN is used by the authentication system (PAM and NSS) to search the LDAP netgroups. This setting is mandatory.

ldap set password-hash { clear|crypt|md5 } Set the password hash to use when setting an LDAP user's password. The password will be encrypted with the configured hash algorithm before sending it to the LDAP server for storing into the LDAP directory. This setting is optional.

ldap get { server|port|basedn|binddn|ssl|rootbinddn| users-basedn|groups-basedn|netgroups-basedn|password-hash } Get the values of the configured settings.

ldap clearall Clear ldap client configuration settings for all parameters.

bond show Display the bond settings.

bond create ***interfacelist mode*** **{ 0 | 1 | 2 | 3 | 4 | 5 | 6 |** balance-rr | active-backup | balance-xor | broadcast | 802.3ad | balance-tlb | balance-alb }:

Create the bond of listed interfaces in a specified mode.

if a default gateway interface (ens192) of the node is going to part of bond then during bond create command execution

always give default gateway interface as first interface. Example Command:- bond create ens192,ens193 0

bond remove ***bondname*** Remove the bond configuration of given bondname.

netgroup add ***groupname memberlist*** Add members to a existing netgroup or create a new netgroup.

netgroup delete ***groupname*** **[*memberlist*]** Delete the members of an existing netgroup or delete whole netgroup.

netgroup show [*groupname*] Display the netgroup settings.

vlan show Display the current VLAN devices.

vlan add ***device vlan_id*** Add a VLAN device with interface *device* and VLAN id as *vlan_id*.

vlan del ***vlan_device*** Delete the VLAN device *vlan_device*

device list ***nodename*** List all plugged NIC devices on node *nodename*.

device ipmonitor show Display IP address(es) monitoring information for NIC devices.

swap ***interface1 interface2*** **[*nodename*]** Swap two network interfaces on a node in the cluster.

krb standalone set ***kdc_server kerberos_realm keytab_file*** This command is used to enable Kerberos authentication for NFS on Veritas Access.

krb standlaone show Display the Kerberos configuration.

krb standalone unset Reset the Kerberos configuration.

12.1.4 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), show(1), vlan(1), device(1), swap(1), krb(1), firewall(1)

12.2 ad

12.2.1 SYNOPSIS

`ad enable`

`ad disable`

`ad show` [status|domain|netbios name|domaincontroller|workgroup]

`ad set` [domain|domaincontroller|workgroup]

`ad unset`

12.2.2 DESCRIPTION

The network `ad` commands are used to configure the Active Directory (AD) client for authentication. These commands configure the system to use AD users and groups when logging into the system. AD clients use the samba windbind service for communicating with the server. Enabling the AD client configures the Pluggable Authentication Module (PAM) for AD users and groups. PAM is the standard authentication framework for Linux.

12.2.3 OPTIONS

value Value of the variable to set.

`ad enable` Enable the AD client to use Active Directory for authentication.

`ad disable` Disable the AD client so that Active Directory is not used for authentication. AD users for which primary role is assigned will not be able to login in AD disabled state.

`ad show` Display the AD client configuration.

`ad set` ***value value value value*** Set the AD client's domain, domaincontroller, workgroup and domainuser. A domain controller can either be an Active Directory server or a Windows NT 4.0 domain controller. A domainuser is the username which is used for authentication in the domain join operation.

`ad unset` Clear the AD client configuration.

12.2.4 EXAMPLES

Set the AD client's domain name, domaincontroller and workgroup.

```
Network> ad set <domain> <domaincontroller> <workgroup> <domainuser>
```

Display the AD client's configuration

```
Network> ad show
Name               Value
=================  ==================
Status             Disabled
Domain             -
netbios name       access
Domain Controller  -
Domain user        Administrator
workgroup          WORKGROUP
```

Unset the AD client's configuration

```
Network> ad unset
```

Enable the AD client

```
Network> ad enable
```

Disbale the AD client

```
Network> ad disable
```

12.2.5 SEE ALSO

bond(1), dns(1), ip(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.3 bond

12.3.1 SYNOPSIS

`bond show`

`bond create` *interfaceList mode*

`bond remove` *bondname*

12.3.2 DESCRIPTION

The `bond` command is used to view, create, or remove the bonding of Ethernet interfaces.

12.3.3 OPTIONS

`interfaceList` *interfaceList* is the comma-separated list of public devices to be bonded.

`mode` Bonding of Ethernet interfaces can be done with the following types of modes

balance-rr or 0 Transmit packets in sequential order from the first available slave through the last. This mode provides load balancing and fault tolerance.:

active-backup or 1 Only one slave in the bond is active. A different slave becomes active if, and only if, the active slave fails.The bond's MAC address is externally visible on only one port (Ethernet interface) to avoid confusing the switch.

balance-xor or 2 Transmit based on the selected transmit hash policy. The default policy is a simple [(source MAC address XOR'd with destination MAC address) modulo slave count]. Alternate transmit policies may be selected via the xmit_hash_policy option. This mode provides load balancing and fault tolerance.

broadcast or 3 Transmits everything on all slave interfaces. This mode provides fault tolerance.

802.3ad or 4 Creates aggregation groups that share the same speed and duplex settings. Utilizes all slaves in the active aggregator according to the 802.3ad specification.:

balance-tlb or 5 Channel bonding that does not require any special switch support. The outgoing traffic is distributed according to the current load (computed relative to the speed) on each slave. Incoming traffic is received by the current slave. If the receiving slave fails, another slave takes over the MAC address of the failed receiving slave.

balance-alb or 6 Includes balance-tlb plus receive load balancing (RLB) for IPV4 traffic, and does not require any special switch support. The receive load balancing is achieved by ARP negotiation.:

`bond show` Show the current bonding settings.

`bond create` ***interfaceList mode*** Create the bond of devices given as interfaceList, in a given mode. During bond creation, `ssh connection may be disconnected`. The MTU of a bond interface is calculated as minimum of the MTUs of the bonded interfaces.

if a default gateway interface (ens192) of the node is going to part of bond then during bond create command execution

always give default gateway interface as first interface. Example Command:- bond create ens192,ens193 0

`bond remove` ***bondname*** Remove the bonding of Ethernet interfaces for the given bondname. During bond remove, `ssh connection may be disconnected`.

12.3.4 EXAMPLES

Display the bond settings.

```
    Network> bond show
BONDNAME    MODE                    DEVICES
--------    ----                    -------
bond0       active-backup           eth0 eth1

    Network> bond show
BONDNAME    MODE                    DEVICES
--------    ----                    -------
privbond0   balance-rr              eth2 eth3
```

Create the bond of the devices given as interfaceList in a specified mode.

```
    Network> bond create eth0,eth1 1
100% [#] Bonding interfaces. Please wait...
bond created, the bond name is: bond0
```

Remove the bond settings of the entered bondname.

```
    Network> bond remove bond0
100% [#] Removing Bond bond0. Please wait...
bond removed : bond0
```

Change in MTU during bond creation.

```
    Network> ip link show
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  ------     ------
node5_1                 eth0    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1    UP      1000  yes    100Mb/s    00:0c:29:a8:9d:fd
node5_2                 eth0    UP      1600  yes    100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1    UP      1600  yes    100Mb/s    00:0c:29:da:c9:ec
    Network> bond create eth0,eth1 1
100% [#] Bonding interfaces. Please wait...
bond created, the bond name is: bond0
    Network> ip link show
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  ------     ------
node5_1                 eth0    UP      1000  yes    100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1    UP      1000  yes    100Mb/s    00:0c:29:a8:9d:fd
node5_1                 bond0   UP      1000  -      -          00:0c:29:a8:9d:f3
node5_2                 eth0    UP      1600  yes    100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1    UP      1600  yes    100Mb/s    00:0c:29:da:c9:ec
node5_2                 bond0   UP      1600  -      -          00:0c:29:da:c9:e2
```

12.3.5 SEE ALSO

dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.4 device

12.4.1 SYNOPSIS

`device list` *nodename*

`device ipmonitor show`

12.4.2 DESCRIPTION

The network `device` command is used to add, remove, rename, identify and list NIC devices from Veritas Access Cluster.

`device list` command prints the bus IDs, MAC addresses, device information, and the device type of all the devices on the given node irrespective of the NICs PCI exclusion state.

`device ipmonitor show` command displays the IP address(es) monitoring information for NIC devices along with the state of the NIC devices.

12.4.3 OPTIONS

nodename The node on which the operation should takes place.

devicename Device on which the operation should takes place.

12.4.4 EXAMPLES

Display the devices.

```
Network> device list cls_01
cls_01
======
Device   BusID         MAC Addr           Device Info                 Device Type
=======  ============  =================  ==========================  ==============
ens161   0000:04:00.0  00:0c:29:a1:7b:17  VMXNET3 Ethernet Controller  Public
ens192   0000:0b:00.0  00:0c:29:a1:7b:f9  VMXNET3 Ethernet Controller  Private
ens256   0000:0c:00.0  00:0c:29:a1:7b:21  VMXNET3 Ethernet Controller  Not Configured
ens224   0000:13:00.0  00:0c:29:a1:7b:03  VMXNET3 Ethernet Controller  Private
ens193   0000:1b:00.0  00:0c:29:a1:7b:0d  VMXNET3 Ethernet Controller  Public
```

To show the monitoring IP addresses for all public devices.

```
    Network> device ipmonitor show
Device          Monitor IPs                   cls_01        cls_02
------          -------------                 ------        ------
ens161          10.209.107.55                 ONLINE        ONLINE
ens256          10.209.107.55                 ONLINE        ONLINE
```

12.4.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), show(1), vlan(1), swap(1), pciexclusion(1)

12.5 dns

12.5.1 SYNOPSIS

`dns show`

`dns enable`

`dns disable`

`dns set domainname` *domainname*

`dns set nameservers` *nameserver1* [*nameserver2*] [*nameserver3*]

`dns set searchdomains` *searchdomain1* [,*searchdomain2*] [,*searchdomain3*]

`dns clear domainname`

`dns clear nameservers`

12.5.2 DESCRIPTION

The network `dns` command is used to view or change the DNS settings. Note: If the cluster has at least one FQDN based NTP server configured, user will not be allowed to clear/disable DNS settings.

12.5.3 OPTIONS

`dns show` Show the current DNS settings. Show whether DNS is enabled or disabled, and the current values for the domain name and name servers.

`dns enable` Enable DNS usage.

`dns disable` Disable DNS usage.

`dns set domainname` ***domainname*** Set the domain name of the server to *domainname*. To clear the domain name, use `dns clear domainname`.

`dns set nameservers` ***nameserver1*** **[*nameserver2*] [*nameserver3*]** Modify the DNS name servers that are used. Specify the name servers in the order in which the name servers should be used. Specify up to three name servers. To clear the name servers list, use `dns clear nameservers`.

`dns set searchdomains` ***searchdomain1*[*****,searchdomain2*][*****,*****searchdomain3*****]** Modify the DNS search domains that are used. Specify the search domains in the order in which the search domains should be used.

`dns clear domainname` Clear the domain name used by DNS.

`dns clear nameservers` Clear the name servers list used by DNS.

12.5.4 EXAMPLES

Display the current DNS settings.

```
    Network> dns show
DNS Status  : Enabled
domain              : cluster1.com
nameserver  : 10.216.50.132
```

Show and then enable the usage of DNS.

```
    Network> dns show
DNS Status      : Disabled
Old Settings
------------
domain              : cluster1.com
nameserver  : 10.216.50.132
    network> dns enable
    network> dns show
DNS Status  : Enabled
domain              : cluster1.com
nameserver  : 10.216.50.132
```

Disable the usage of DNS.

```
    Network> dns disable
    Network> dns show
DNS Status  : Disabled
Old Settings
------------
domain              : cluster1.com
nameserver  : 10.216.50.132
```

Change the DNS domainname.

```
    Network> dns set domainname example.com
    Network> dns show
DNS Status      : Enabled
domain          : example.com
nameserver      : 10.216.50.132
```

Clear the domain name being used.

```
    Network> dns clear domainname
    Network> dns show
DNS Status      : Enabled
nameserver      : 10.216.50.132
```

Set the name servers as 10.216.50.199 and 10.216.50.200.

```
    Network> dns set nameservers 10.216.50.199 10.216.50.200
    Network> dns show
DNS Status  : Enabled
nameserver  : 10.216.50.199
nameserver  : 10.216.50.200
```

Remove all name servers that are being used.

```
    Network> dns clear nameservers
    Network> dns show
DNS Status      : Enabled
```

12.5.5 SEE ALSO

bond(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.6 firewall

12.6.1 SYNOPSIS

`firewall status`

`firewall enable`

`firewall disable`

`firewall rule list`

`firewall rule add` *iptype flter interface client protocols* [*sport*] [*dport*] [*match_state*]

`firewall rule remove` *iptype flter interface client protocols* [*sport*] [*dport*] [*match_state*]

12.6.2 DESCRIPTION

The network `firewall` command is used to view or change the firewall settings.

12.6.3 OPTIONS

`iptype` Network IP type ipv4 or ipv6. Allowd value are ipv4/ ipv6/ ipv4,ipv6.

`flter` Specifies the iptable chain filter type. Allowed value are INPUT or OUTPUT.

`interface` Name of the network interface by which the packet will be received. If you enter "ALL" , an iptable entry is added for all public interfaces which are in control of the product.

`client` Source IP from which the packet is received. ALL should be entered to apply the rule to all sources.

`protocols` Allowed values are tcp, udp, icmp and tcp,udp. When (tcp,udp) is given, two separate rules will be added, one for each protocol.

`sport` Port through which the packet leaves the machine. The ALL option applies the rule to all the ports. NONE option is used to unspecify a port or enter specific port number.

Note : sport and dport cannot both have NONE value at the same time.

`dport` Port through which the packet is received. The ALL option applies the rule to all the ports. NONE option is used to unspecify a port or enter specific port number.

Note : sport and dport cannot both have NONE value at the same time.

`match_state` Match state for the connection. Enter NONE if you do not want to specify any state. Match state can be NEW/ ESTABLISHED/ RELATED.

`firewall status` Display whether the current firewall status is enabled or disabled.

`firewall enable` Enable the firewall setting to allow specific IPs to connect to the ports while blocking other connections.

`firewall disable` Disable the firewall setting and allow connections on any port from any IP. Applied rules do not work when the firewall setting is disabled.

`firewall rule list` List the firewall rules set on the cluster nodes by the user.

`firewall rule add` ***iptype flter interface client protocols*** **[*sport*] [*dport*] [*match_state*]** Add the iptable rule in the current iptable configuration.

firewall rule remove *iptype filter interface client protocols* [*sport*] [*dport*] [*match_state*]
Remove the rule from the current iptable configuration.

12.6.4 EXAMPLES

Display the current firewall settings.

```
    Network> firewall status
Firewall status : DISABLED
```

Enable firewall.

```
    Network> firewall enable
ACCESS net INFO V-288-0 Firewall successfully enabled
```

Disable firewall.

```
    Network> firewall disable
It is not advisable to disable firewall. Do you want you continue (y/n): y
ACCESS net INFO V-288-0 Firewall successfully disabled
```

Add a firewall rule.

```
    Network> firewall rule add ipv4,ipv6 INPUT ALL ALL tcp,udp 101 102 NEW
ACCESS firewall INFO V-493-10-4 Firewall iptables rules added successfully

    Network> firewall rule list
iptype   filter   interface   client   protocols   sport   dport   match_state
=======  =======  ==========  =======  ==========  ======  ======  ============
ipv4     INPUT    pubeth0     ALL      tcp         101     102     NEW
ipv6     INPUT    pubeth0     ALL      tcp         101     102     NEW
ipv4     INPUT    pubeth0     ALL      udp         101     102     NEW
ipv6     INPUT    pubeth0     ALL      udp         101     102     NEW
ipv4     INPUT    pubeth1     ALL      tcp         101     102     NEW
ipv6     INPUT    pubeth1     ALL      tcp         101     102     NEW
ipv4     INPUT    pubeth1     ALL      udp         101     102     NEW
ipv6     INPUT    pubeth1     ALL      udp         101     102     NEW
ipv4     INPUT    pubeth2     ALL      tcp         101     102     NEW
ipv6     INPUT    pubeth2     ALL      tcp         101     102     NEW
ipv4     INPUT    pubeth2     ALL      udp         101     102     NEW
ipv6     INPUT    pubeth2     ALL      udp         101     102     NEW
ipv4     INPUT    pubeth3     ALL      tcp         101     102     NEW
ipv6     INPUT    pubeth3     ALL      tcp         101     102     NEW
ipv4     INPUT    pubeth3     ALL      udp         101     102     NEW
ipv6     INPUT    pubeth3     ALL      udp         101     102     NEW
access7310.Network>
```

Remove a firewall rule.

```
    Network> firewall rule remove ipv4,ipv6 INPUT ALL ALL tcp,udp 101 102 NEW
ACCESS firewall INFO V-493-10-4 Firewall iptables rules removed successfully

    Network> firewall rule list
iptype   filter   interface   client   protocols   sport   dport   match_state
=======  =======  ==========  =======  ==========  ======  ======  ============
    Network>
```

12.6.5 SEE ALSO

bond(1), ip(1), nis(1), nsswitch(1), ping(1), show(1), device(1)

12.7 ip

12.7.1 SYNOPSIS

`ip link set` *nodename device* { up | down | mtu *MTU* }

`ip link show` [*nodename*] [*device*]

`ip addr modify` *oldipaddr newipaddr* { *netmask* | *prefix* } [*device*] [*fqdns*]

`ip addr del` *ipaddr*

`ip addr add` *ipaddr* { *netmask* | *prefix* } *type* [*device*] [*nodename*] [*fqdns*]

`ip addr online` *ipaddr nodename*

`ip addr show`

`ip route show` [*nodename*] [*memory*|*config*]

`ip route add` *nodename ipaddr* { *netmask* | *prefix* }

via *gateway* [dev *device*] *scope*

`ip route del` ***nodename ipaddr*** **{** ***netmask*** **|** ***prefix*** **}** via *gateway* [dev *device*] *scope*

12.7.2 OPTIONS

nodename Node on which the operation takes place.g A value of `all` indicates the operation takes place on all nodes of the cluster.

device Device on which the operation takes place.

ipaddr Specifies the IP address. You can specify either an IPv4 address, or an IPv6 address.

oldipaddr Specifies the old IP address to be modified.g

newipaddr Specifies what the new IP address will be.

netmask Netmask for the IPv4 address. Specify an IPv4 address in the format AAA.BBB.CCC.DDD, where each number ranges from 0 to 255.

prefix Prefix length for the IPv6 address. The accepted range is 0-128 integers.

`up` Changes the state of the device to `up`.

`down` Changes the state of the device to `down`.

`mtu` ***MTU*** The Maximum Transmission Unit (MTU) of the device.

type Specifies how the *ipaddr* should be used by the cluster. The *type* can be `physical` or `virtual`. Physical IP addresses are bound to an interface. Virtual IP addresses can be moved from one interface to other. NFS is served using the virtual IP addresses.

fqdns Specifies a comma-separated list of Fully Qualified Domain Name (FQDN) of the IP address. The fqdn can include the characters: a-z|A-Z|0-9 or a hyphen (-). Each level of the FQDN should be between 1 and 63 characters long and should not start or end with a hyphen (-). The last Top Level Domain (TLD) must be at least two characters and have a maximum of six characters. *fqdns* can have NONE value for `modify` operation. NONE is used to remove the existing FQDN entry from the /etc/hosts file.

ip link set ***nodename device*** **{ up | down | mtu** ***MTU*** **}** Change network device attributes or states. Use `all` to change attributes on all nodes. Devices that are part of a bond interface can not be configured through this command. MTU changes to a bond interface get applied to all the interfaces that are part of that bond. MTU can be set on private devices also. For *MTU* the *device* can be `public` or `private` or `all` or any `device name`. `public` will set mtu for all public devices. `private` will set mtu for all private devices. `all` will set mtu for all devices. `device name` will set mtu for specified device. Note: Setting the incorrect MTU value will cause the console ip to be unavailable. For *up* or *down* the *device* can be `all` or any `device name`. `all` will up or down all public devices. `device name` will up or down specified device if it is a public device.

ip link show [*nodename*] [*device*] Display device attributes. The *device* can be `public` or `private` or `all` or any `device name`. `public` will display attributes for all public devices. `private` will display attributes for all private devices. `all` will display attributes for all devices. `device name` will display attributes for specified device.

ip addr add ***ipaddr netmask|prefix type*** **[*device*] [*nodename*] [*fqdns*]** Add a new IP address. IP is a protocol that allows addresses to be attached to a network device. Each device must have at least one address to use the corresponding protocol. Both IPv4 and IPv6g addresses can be attached to one device. The *type* can be `physical` or `virtual` The *device* attribute can be used with IP *type* `virtual` If the value *type* is `physical`, and the value of *device* and *nodename* are valid given physical IP will be added for input device. If no *device* and *nodename* configured input physical IP will be added to free list. The *fqdns* is an optional argument. Each fqdn must be a valid fqdn. Upon successful validation of the fqdn, IP and fqdns entry will be added into the /etc/hosts.

ip addr del ***ipaddr*** Delete an IP address from the cluster. Physical IP addresses can be deleted from any interface of any node in the cluster. Virtual IP addresses, except the console IP address, can be deleted.

ip addr modify ***oldipaddr newipaddr netmask|prefix device*** Modify an IP address used by the cluster. Physical IP addresses and virtual IP addresses can both be modified. Virtual IP address modifications cause NFS connections on *oldipaddr* to be terminated.

ip addr online ***ipaddr nodename*** Bring an IP address online for a running node of the cluster.

ip addr show Shows the IP addresses being used.

ip route add ***nodename ipaddr netmask|prefix*** **via** ***gateway*** **[dev** ***device*****] [*****scope*****]** Add a new route for the cluster. The routing table contains information about paths to other networked nodes. Routing table changes can be made per node of the cluster. Use `all` for *nodename* to add the route to all nodes of the cluster. Use a netmask(prefix for IPv6) value of `255.255.255.255(128 for IPv6)` for the *netmask* to add a host route to *ipaddr*. Use a value of `0.0.0.0(:: for IPv6)` for the *gateway* to add a route that does not use any gateway. The `dev` *device* is an optional argument.g Use any of the public devices for the *device* (eth0, eth1, or any). The `scope` arguement is an optional argument. It is either `global` or `local`. If not given then `local` by default. `global` indicates that the route will get added to main routing table `local` indiactes that the route will get added to sub-routing (subnet specific) routing tables.

ip route del ***nodename ipaddr netmask|prefix*** **[via** ***gateway*****] [dev** ***device*****] [*****scope*****]** Delete a route used by the cluster. Use `all` for *nodename* to delete the route from all nodes of the cluster. The combination of *ipaddr* and *netmask* specifies the network or hostg for which the route is deleted.g Use a value of `255.255.255.255(128 for IPv6)` for the *netmask|prefix* to delete a host route to *ipaddr*. `gateway` is an optional argument. If not provided deletes all the routes from all the tables with similar subnet. `device` is an optional argument. The `scope` arguement is an optional argument. It is either `global` or `local`. If not given then `local` by default. `global` indicates that the route will get deleted from main routing table `local` indiactes that the route will get deleted from sub-routing (subnet specific) routing tables.

ip route show [*nodename*] [*memory|config*] Display the routing table of the nodes in the cluster

from memory or config. Use `all` to see the routing table from all nodes of the cluster. Use `memory` to see routing information from memory. Use `config` to see global config routing information.

12.7.3 EXAMPLES

Display the current link attributes and states.

```
Network> ip link show
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  -----      ------
node5_1                 eth0    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fd
node5_1                 eth2    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth0    UP      1500  yes    100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ec
node5_2                 eth2    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ed
```

View the attributes and state of a specific node and a specific interface.

```
Network> ip link show node5_2 eth0
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  -----      ------
node5_2                 eth0    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:f3
```

Display the current link attributes and states for public interfaces.

```
Network> ip link show all public
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  -----      ------
node5_1                 eth0    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fd
node5_2                 eth0    UP      1500  yes    100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ec
```

Display the current link attributes and states for private interfaces.

```
Network> ip link show all private
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  -----      ------
node5_1                 eth2    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth2    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ed
```

Set the MTU value on all nodes for a specific device.

```
Network> ip link set all eth0 mtu 1600
Network> ip link show
Nodename                Device  Status  MTU  Detect  Speed      HWaddr
--------                ------  ------  ---  ------  -----      ------
node5_1                 eth0    UP      1600  yes    100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fd
node5_1                 eth2    UP      1500  yes    100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth0    UP      1600  yes    100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ec
node5_2                 eth2    UP      1500  yes    100Mb/s    00:0c:29:da:c9:ed
```

Set the MTU value on all nodes for all public devices.

```
Network> ip link set all public mtu 1600
Network> ip link show
Nodename                Device   Status   MTU   Detect   Speed      HWaddr
--------                ------   ------   ---   ------   -----      ------
node5_1                 eth0     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:fd
node5_1                 eth2     UP       1500   yes     100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth0     UP       1600   yes     100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1     UP       1600   yes     100Mb/s    00:0c:29:da:c9:ec
node5_2                 eth2     UP       1500   yes     100Mb/s    00:0c:29:da:c9:ed
```

Set the MTU value on all nodes for all private devices.

```
Network> ip link set all private mtu 1600
Network> ip link show
Nodename                Device   Status   MTU   Detect   Speed      HWaddr
--------                ------   ------   ---   ------   -----      ------
node5_1                 eth0     UP       1500   yes     100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1     UP       1500   yes     100Mb/s    00:0c:29:a8:9d:fd
node5_1                 eth2     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth0     UP       1500   yes     100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1     UP       1500   yes     100Mb/s    00:0c:29:da:c9:ec
node5_2                 eth2     UP       1600   yes     100Mb/s    00:0c:29:da:c9:ed
```

Set the MTU value on all nodes for a all devices.

```
Network> ip link set all all mtu 1600
Network> ip link show
Nodename                Device   Status   MTU   Detect   Speed      HWaddr
--------                ------   ------   ---   ------   -----      ------
node5_1                 eth0     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:f3
node5_1                 eth1     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:fd
node5_1                 eth2     UP       1600   yes     100Mb/s    00:0c:29:a8:9d:fe
node5_2                 eth0     UP       1600   yes     100Mb/s    00:0c:29:da:c9:e2
node5_2                 eth1     UP       1600   yes     100Mb/s    00:0c:29:da:c9:ec
node5_2                 eth2     UP       1600   yes     100Mb/s    00:0c:29:da:c9:ed
```

Display the IP addresses used by the cluster and their states.

```
Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status
↪      FQDNs
--              --------------  ------     ----            ----     ------
↪      -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical        (Media IP)
↪      host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical
↪      host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical        (Media IP)
↪      host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical
↪      host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)
↪      host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical
↪      host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)
↪      host-vip14.testdomain.com
```

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```
192.168.10.13   255.255.248.0   eth1       node-04         Physical
↪       host-v014.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)
↪       admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe
↪IP)       host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe
↪IP)       host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe
↪IP)       host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe
↪IP)       host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master
↪IP)       host-vip73.testdomain.com
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API
↪GATEWAY IP) host-vip72.testdomain.com
Network>
```

Add an IP address to the physcial IP addresses used by the cluster.

```
node.Network> ip addr add 192.168.10.14 255.255.248.0 physical
ACCESS ip addr SUCCESS V-493-10-1381 ip addr add successful.
node.Network>
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status
↪       FQDNs
--              --------------  ------     ----            ----     ------
↪       -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical        (Media IP)
↪       host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical
↪       host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical        (Media IP)
↪       host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical
↪       host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)
↪       host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical
↪       host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)
↪       host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical
↪       host-v014.testdomain.com
192.168.10.14   255.255.248.0              ( unused )      Physical
↪       host-v015.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)
↪       admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe
↪IP)       host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe
↪IP)       host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe
↪IP)       host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe
↪IP)       host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master
↪IP)       host-vip73.testdomain.com
```

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```
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API␣
↪GATEWAY IP) host-vip72.testdomain.com
node.Network>
```

Add an IP address to the virtual IP addresses used by the cluster.

```
Network> ip addr add 192.168.10.44 255.255.248.0 virtual
ACCESS ip addr SUCCESS V-493-10-1381 ip addr add successful.
node.Network>
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status          ␣
↪      FQDNs
--              --------------  ------     ----            ----     ------          ␣
↪      -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical        (Media IP)␣
↪      host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical                ␣
↪      host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical        (Media IP)␣
↪      host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical                ␣
↪      host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)␣
↪      host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical                ␣
↪      host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)␣
↪      host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical                ␣
↪      host-v014.testdomain.com
192.168.10.14   255.255.248.0              ( unused )      Physical                ␣
↪      host-v015.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)  ␣
↪      admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master␣
↪IP)      host-vip73.testdomain.com
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API␣
↪GATEWAY IP) host-vip72.testdomain.com
192.168.10.44   255.255.248.0   eth7       node-01         Virtual  ONLINE          ␣
↪      host-vip15.testdomain.com
node.Network>
```

Add an IP address to the virtual IP addresses used by the cluster for a VLAN device

```
node.Network> ip addr add 192.168.1.27 255.255.248.0 virtual eth5.2
ACCESS ip addr SUCCESS V-493-10-1381 ip addr add successful.
node.Network>
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status          ␣
↪      FQDNs
```

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```
--              --------------  ------     ----            ----     ------
↪       -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical         (Media IP)
↪       host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical
↪       host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical         (Media IP)
↪       host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical
↪       host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical         (Media IP)
↪       host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical
↪       host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical         (Media IP)
↪       host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical
↪       host-v014.testdomain.com
192.168.10.14   255.255.248.0              ( unused )      Physical
↪       host-v015.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)
↪       admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe
↪IP)      host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe
↪IP)      host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe
↪IP)      host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe
↪IP)      host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master
↪IP)      host-vip73.testdomain.com
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API
↪GATEWAY IP) host-vip72.testdomain.com
192.168.10.44   255.255.248.0   eth7       node-01         Virtual  ONLINE
↪       host-vip15.testdomain.com
192.168.1.27    255.255.248.0   eth5.2     node-01         Virtual  ONLINE
↪       host-vip45.testdomain.com
node.Network>
```

Delete an IP address from the physical IP addresses being used by the cluster. Physical IP addresses that are assigned to a device can be modified or deleted. The virtual IP address for the console cannot be deleted; it can only be modified.

```
node.Network> ip addr del 192.168.10.14
ACCESS ip addr SUCCESS V-493-10-1381 ip addr del successful.
node.Network>
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status
↪       FQDNs
--              --------------  ------     ----            ----     ------
↪       -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical         (Media IP)
↪       host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical
↪       host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical         (Media IP)
↪       host-vip12.testdomain.com
```

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```
192.168.10.11   255.255.248.0   eth1       node-02         Physical                  ␣
↪       host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)␣
↪       host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical                  ␣
↪       host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)␣
↪       host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical                  ␣
↪       host-v014.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)  ␣
↪       admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe␣
↪IP)      host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master␣
↪IP)      host-vip73.testdomain.com
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API␣
↪GATEWAY IP) host-vip72.testdomain.com
192.168.10.44   255.255.248.0   eth7       node-01         Virtual  ONLINE           ␣
↪       host-vip15.testdomain.com
192.168.1.27    255.255.248.0   eth5.2     node-02         Virtual  ONLINE           ␣
↪       host-vip45.testdomain.com
node.Network>
```

Modify an IP address from the IP addresses being used by the cluster. Physical IP addresses that are assigned to a device can be modified or deleted. The virtual IP address for the console cannot be deleted; it can only be modified.

```
node.Network> ip addr modify 192.168.10.44 192.168.10.14 255.255.248.0 eth5
ACCESS ip addr SUCCESS V-493-10-1381 ip addr modify successful.
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status           ␣
↪       FQDNs
--              --------------  ------     ----            ----     ------           ␣
↪       -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical        (Media IP)␣
↪       host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical                  ␣
↪       host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical        (Media IP)␣
↪       host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical                  ␣
↪       host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)␣
↪       host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical                  ␣
↪       host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)␣
↪       host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical                  ␣
↪       host-v014.testdomain.com
```

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```
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)
↪      admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe
↪IP)      host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe
↪IP)      host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe
↪IP)      host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe
↪IP)      host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master
↪IP)      host-vip73.testdomain.com
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API
↪GATEWAY IP) host-vip72.testdomain.com
192.168.10.14   255.255.248.0   eth5       node-01         Virtual  ONLINE
↪      host-v015.testdomain.com
192.168.1.27    255.255.248.0   eth5.2     node-02         Virtual  ONLINE
↪      host-vip45.testdomain.com
node.Network>
```

Online an IP protocol address used by the cluster on any running node of the cluster.

```
node.Network> ip addr online 192.168.1.27 node-03
ACCESS ip addr SUCCESS V-493-10-1381 ip addr online successful.
node.Network>
node.Network> ip addr show
IP              Netmask/Prefix  Device     Node            Type     Status
↪      FQDNs
--              --------------  ------     ----            ----     ------
↪      -----
192.168.10.40   255.255.248.0   eth5       node-01         Physical        (Media IP)
↪      host-vip11.testdomain.com
192.168.10.10   255.255.248.0   eth1       node-01         Physical
↪      host-v011.testdomain.com
192.168.10.41   255.255.248.0   eth5       node-02         Physical        (Media IP)
↪      host-vip12.testdomain.com
192.168.10.11   255.255.248.0   eth1       node-02         Physical
↪      host-v012.testdomain.com
192.168.10.42   255.255.248.0   eth5       node-03         Physical        (Media IP)
↪      host-vip13.testdomain.com
192.168.10.12   255.255.248.0   eth1       node-03         Physical
↪      host-v013.testdomain.com
192.168.10.43   255.255.248.0   eth5       node-04         Physical        (Media IP)
↪      host-vip14.testdomain.com
192.168.10.13   255.255.248.0   eth1       node-04         Physical
↪      host-v014.testdomain.com
192.168.1.53    255.255.248.0   eth1       node-01         Virtual  ONLINE (Con IP)
↪      admin.node.testdomain.com,s3.node.testdomain.com
192.168.1.23    255.255.248.0   eth5       node-02         Virtual  ONLINE (Dedupe
↪IP)      host-vip41.testdomain.com
192.168.1.24    255.255.248.0   eth5       node-03         Virtual  ONLINE (Dedupe
↪IP)      host-vip42.testdomain.com
192.168.1.25    255.255.248.0   eth5       node-04         Virtual  ONLINE (Dedupe
↪IP)      host-vip43.testdomain.com
192.168.1.26    255.255.248.0   eth5       node-01         Virtual  ONLINE (Dedupe
↪IP)      host-vip44.testdomain.com
192.168.1.55    255.255.248.0   eth5       node-01         Virtual  ONLINE (Master
↪IP)      host-vip73.testdomain.com
```

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```
192.168.1.54    255.255.248.0   eth1       node-01         Virtual  ONLINE (API␣
↪GATEWAY IP) host-vip72.testdomain.com
192.168.10.14   255.255.248.0   eth5       node-01         Virtual  ONLINE
↪      host-v015.testdomain.com
192.168.1.27    255.255.248.0   eth5.2     node-03         Virtual  ONLINE
↪      host-vip45.testdomain.com
node.Network>
```

View the routing table of a specific node in the cluster.

```
Network> ip route show node_01
node_01
----------------
IPv4 routing table: main
========================
Destination  Gateway      Genmask         Flags  MSS  Window  irtt  Iface
===========  ===========  ==============  =====  ===  ======  ====  ======
0.0.0.0      10.84.144.1  0.0.0.0         UG     0    0       0     ens161
10.84.144.0  0.0.0.0      255.255.248.0   U      0    0       0     ens161
10.84.144.0  0.0.0.0      255.255.248.0   U      0    0       0     ens192
172.16.0.0   0.0.0.0      255.255.255.0   U      0    0       0     ens224

IPv4 routing table: 2
=====================
Destination  Gateway      Genmask         Flags  MSS  Window  irtt  Iface
===========  ===========  ==============  =====  ===  ======  ====  ======
0.0.0.0      10.84.144.1  0.0.0.0         UG     0    0       0     ens192
10.84.144.0  0.0.0.0      255.255.248.0   U      0    0       0     ens192

IPv4 routing table: 1
=====================
Destination  Gateway      Genmask         Flags  MSS  Window  irtt  Iface
===========  ===========  ==============  =====  ===  ======  ====  ======
0.0.0.0      10.84.144.1  0.0.0.0         UG     0    0       0     ens161
10.84.144.0  0.0.0.0      255.255.248.0   U      0    0       0     ens161
```

Add a route through a given device to the routing table of all nodes in the cluster. Use a value of 0.0.0.0 for the gateway, to use a route that is based on only the device and does not use any gateway.

```
Network> ip route add all 0.0.0.0 0.0.0.0 via 192.168.20.1 dev any scope=local
Network> ip route show
node_01
----------------
IPv4 routing table: main
========================
Destination   Gateway      Genmask         Flags  MSS  Window  irtt  Iface
============  ===========  ==============  =====  ===  ======  ====  ======
0.0.0.0       10.84.144.1  0.0.0.0         UG     0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0   U      0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0   U      0    0       0     ens192
172.16.0.0    0.0.0.0      255.255.255.0   U      0    0       0     ens224
192.168.20.0  0.0.0.0      255.255.255.0   U      0    0       0     ens192

IPv4 routing table: 3
=====================
Destination   Gateway       Genmask         Flags  MSS  Window  irtt  Iface
```

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```
============  ============  =============  =====  ===  ======  ====  ======
0.0.0.0       192.168.20.1  0.0.0.0        UG     0    0       0     ens192
192.168.20.0  0.0.0.0       255.255.255.0  U      0    0       0     ens192

IPv4 routing table: 2
=====================
Destination  Gateway  Genmask        Flags  MSS  Window  irtt  Iface
===========  =======  =============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0  U      0    0       0     ens192

IPv4 routing table: 1
=====================
Destination  Gateway  Genmask        Flags  MSS  Window  irtt  Iface
===========  =======  =============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0  U      0    0       0     ens161

node_02
----------------
IPv4 routing table: main
========================
Destination   Gateway      Genmask        Flags  MSS  Window  irtt  Iface
============  ===========  =============  =====  ===  ======  ====  ======
0.0.0.0       10.84.144.1  0.0.0.0        UG     0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0  U      0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0  U      0    0       0     ens192
172.16.0.0    0.0.0.0      255.255.255.0  U      0    0       0     ens224
192.168.20.0  0.0.0.0      255.255.255.0  U      0    0       0     ens161

IPv4 routing table: 4
=====================
Destination   Gateway       Genmask        Flags  MSS  Window  irtt  Iface
============  ============  =============  =====  ===  ======  ====  ======
0.0.0.0       192.168.20.1  0.0.0.0        UG     0    0       0     ens161
192.168.20.0  0.0.0.0       255.255.255.0  U      0    0       0     ens161

IPv4 routing table: 2
=====================
Destination  Gateway  Genmask        Flags  MSS  Window  irtt  Iface
===========  =======  =============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0  U      0    0       0     ens192

IPv4 routing table: 1
=====================
Destination  Gateway  Genmask        Flags  MSS  Window  irtt  Iface
===========  =======  =============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0  U      0    0       0     ens161
```

Delete the default gateway being used by a specific node. The deletion only aim at static routes which are added by command (`ip route add`).

```
Network> network ip route del all 0.0.0.0 0.0.0.0 via 192.168.20.1 dev any scope=local
Network> ip route show node_01
node_01
----------------
IPv4 routing table: main
========================
```

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```
Destination   Gateway      Genmask         Flags  MSS  Window  irtt  Iface
============  ===========  ==============  =====  ===  ======  ====  ======
0.0.0.0       10.84.144.1  0.0.0.0         UG     0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0   U      0    0       0     ens161
10.84.144.0   0.0.0.0      255.255.248.0   U      0    0       0     ens192
172.16.0.0    0.0.0.0      255.255.255.0   U      0    0       0     ens224
192.168.20.0  0.0.0.0      255.255.255.0   U      0    0       0     ens192

IPv4 routing table: 3
=====================
Destination   Gateway  Genmask         Flags  MSS  Window  irtt  Iface
============  =======  ==============  =====  ===  ======  ====  ======
192.168.20.0  0.0.0.0  255.255.255.0   U      0    0       0     ens192

IPv4 routing table: 2
=====================
Destination  Gateway  Genmask         Flags  MSS  Window  irtt  Iface
===========  =======  ==============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0   U      0    0       0     ens192

IPv4 routing table: 1
=====================
Destination  Gateway  Genmask         Flags  MSS  Window  irtt  Iface
===========  =======  ==============  =====  ===  ======  ====  ======
10.84.144.0  0.0.0.0  255.255.248.0   U      0    0       0     ens161
```

View the global route config information for cluster nodes.

```
Network> ip route show all config
node_01
----------------
Destination  Netmask  Gateway      Iface   Scope
===========  =======  ===========  ======  ======
0.0.0.0      0.0.0.0  10.84.144.1  ens161  global

node_02
----------------
Destination  Netmask  Gateway      Iface   Scope
===========  =======  ===========  ======  ======
0.0.0.0      0.0.0.0  10.84.144.1  ens161  global
```

12.7.4 SEE ALSO

bond(1), dns(1), ldap(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.8 krb

12.8.1 SYNOPSIS

`krb standalone set` *kdc_server kerberos_realm keytab_file*

`krb standalone unset`

`krb standalone show`

12.8.2 OPTIONS

kdc_server Kerberos KDC server.

kerberos_realm Kerberos realm.

keytab_file Location of keytab file on the console node.

`krb standalone set` ***kdc_server kerberos_realm keytab_file*** This command enables Kerberos authentication for NFS mounts. This would set Kerberos configuration on Veritas Access given the KDC server, Kerberos realm and the keytab file. Keytab file should have been uploaded to the Veritas Access console node. Keytab file will be copied from the console node to /etc/krb5.keytab on all of the nodes of the cluster. Kerberos will be configured on all of the nodes of the cluster. Keytab file should have been set up with clustername as the hostname. Kerberos cannot be configured with standalone KDC if CIFS is already configured with `ads`. This command also checks for the correct domain in the **/etc/idmapd.conf** file. If the domain is not set, NFSv4 idmapping will not be proper and the command will throw a warning to set the domain.

`krb standlaone show` Display the Kerberos configuration.

`krb standalone unset` Reset the Kerberos configuration.

12.8.3 EXAMPLES

```
test_fa.Network> krb standalone set kdc_server TESTKDC.COM /home/support/krb5.keytab
ACCESS krb SUCCESS V-288-999 Kerberos configured for NFS

test_fa.Network> krb standalone show
Kerberos General Info:
======================
KDC:    kdc_server
REALM:  TESTKDC.COM

Keytab Info:
============
Keytab name: FILE:/etc/krb5.keytab
KVNO Timestamp         Principal
---- ----------------- --------------------------------------------------------
   2 07/07/15 16:02:54 nfs/test_fa@TESTKDC.COM (aes256-cts-hmac-sha1-96)
   2 07/07/15 16:02:54 nfs/test_fa@TESTKDC.COM (aes128-cts-hmac-sha1-96)
   2 07/07/15 16:02:54 nfs/test_fa@TESTKDC.COM (des3-cbc-sha1)
   2 07/07/15 16:02:54 nfs/test_fa@TESTKDC.COM (arcfour-hmac)
   2 07/07/15 16:02:54 nfs/test_fa@TESTKDC.COM (des-hmac-sha1)
   2 07/07/15 16:02:55 nfs/test_fa@TESTKDC.COM (des-cbc-md5)
```

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```
test_fa.Network> krb standalone unset
ACCESS krb SUCCESS V-288-999 Kerberos configuration is reset

test_fa.Network> krb standalone show
Kerberos is not configured
test_fa.Network>
```

12.9 ldap

12.9.1 SYNOPSIS

`ldap enable`

`ldap disable`

`ldap show` [users|groups|netgroups]

`ldap set` { server|port|basedn|binddn|ssl|rootbinddn|
users-basedn|groups-basedn|netgroups-basedn|password-hash } *value*

`ldap get` { server|port|basedn|binddn|ssl|rootbinddn|
users-basedn|groups-basedn|netgroups-basedn|password-hash }

`ldap clear` { server|port|basedn|binddn|ssl|rootbinddn|
users-basedn|groups-basedn|netgroups-basedn|password-hash }

`ldap clearall`

12.9.2 DESCRIPTION

The network `ldap` commands are used to configure the Lightweight Directory Access Protocol (LDAP) client for authentication. These commands configure the system to use LDAP users and groups when logging into the system. LDAP clients use the LDAPv3 protocol for communicating with the server. Enabling the LDAP client configures the Pluggable Authentication Module (PAM) for LDAP users and groups. PAM is the standard authentication framework for Linux.

12.9.3 OPTIONS

value Value of the variable to set.

`ldap enable` Enable the LDAP client, and configure PAM configuration files to use LDAP.

`ldap disable` Disable the LDAP client, and configure PAM configuration files not to use LDAP.

`ldap show` Display the LDAP client configuration.

`ldap show users` Display the LDAP users that are available in the NSS database.

`ldap show groups` Display the LDAP groups that are available in the NSS database.

`ldap show netgroups` Display the LDAP netgroups that are available in the NSS database.

`ldap set server` ***value*** Set the LDAP server's host name or IP address. This setting is mandatory.

`ldap set port` ***value*** Set the LDAP server's port. Default value is 389.

`ldap set basedn` ***value*** Set the LDAP base Distinguished Name (DN). This setting is mandatory.

`ldap set ssl { on|off }` Set LDAP over Secure Sockets Layer (SSL) to be on or off. Set this option to "on" if your LDAP server supports SSL. Certificates required for SSL are auto-negotiated with the LDAP server during session establishment. The default value is "off." This setting is mandatory.

`ldap set binddn` ***value*** Set the LDAP bind DN and its password. This DN is used to bind with the LDAP server for "read" access. For authentication, "read" access to most of the attributes is required. This setting is mandatory.

ldap set rootbinddn *value* Set the LDAP root bind DN and its password. This DN is used to bind with the LDAP server for "write" access. This setting is not required for authentication. To change some attributes of an LDAP entry, this DN is required. For example, changing a user's password by root (uid=0) user requires admin privileges to write into the LDAP directory. This setting is optional.

ldap set users-basedn *value* Set the LDAP users base DN. This DN is used by the authentication system (PAM and NSS) to search LDAP users. This setting is mandatory.

ldap set groups-basedn *value* Set the LDAP groups base DN. This DN is used by the authentication system (PAM and NSS) to search the LDAP groups. This setting is mandatory.

ldap set netgroups-basedn *value* Set the LDAP netgroups base DN. This DN is used by the authentication system (PAM and NSS) to search the LDAP netgroups. This setting is mandatory.

ldap set password-hash { clear|crypt|md5 } Set the password hash to use when setting an LDAP user's password. The password will be encrypted with the configured hash algorithm before sending it to the LDAP server for storing into the LDAP directory. This setting is optional.

ldap get { server|port|basedn|binddn|ssl|rootbinddn|users-basedn|groups-basedn|netgroups-basedn|password-hash } Get the values of the configured settings.

ldap clear { server|port|basedn|binddn|ssl|rootbinddn| users-basedn|groups-basedn|netgroups-basedn|password-hash }:

Clears a specified attribute and sets to default.

ldap clearall Clear ldap client configuration settings for all parameters.

12.9.4 EXAMPLES

Enable the LDAP client.

```
Network> ldap enable
```

Disable the LDAP client.

```
Network> ldap disable
```

Display the LDAP client configuration.

```
    Network> ldap show
LDAP client is enabled.
=======================
LDAP server:               ldap_server
LDAP port:                 389 (default)
LDAP base DN:              dc=example,dc=com
LDAP over SSL:             on
LDAP bind DN:              cn=binduser,dc=example,dc=com
LDAP root bind DN:         cn=admin,dc=example,dc=com
LDAP password hash:        md5
LDAP users base DN:        ou=Users,dc=example,dc=com
LDAP groups base DN:       ou=Groups,dc=example,dc=com
LDAP netgroups base DN:    ou=Netgroups,dc=example,dc=com
OK Completed
```

Display the LDAP users available to the authentication system.

```
    Network> ldap show users
=================
User 'ldapuser1':
=================
Username:       Username Surname
uid:            2000
gid:            2000
Home Directory: /home/ldapuser1
Login Shell:    /bin/bash
```

Display the LDAP groups available to the authentication system.

```
    Network> ldap show groups
=============
Group '2000':
=============
Groupname:              group1
Members of the Group:  ldapuser1
```

Show LDAP netgroups available to the authentication system.

```
    Network> ldap show netgroups
Using ldap-server.example.com as LDAP server and 389 as LDAP port.
====================
Netgroup 'netgroup1':
====================
Host                User                Domain
host1               -                   -
host2               admin               -

====================
Netgroup 'netgroup2':
====================
Host                User                Domain
host3               testadmin            -
```

Configure the LDAP server name.

```
    Network> ldap set server ldap-server.example.com
OK Completed
```

Get the configured LDAP server name.

```
    Network> ldap get server
LDAP server:             ldap-server.example.com
OK Completed
```

Configure the LDAP server port.

```
    Network> ldap set port 555
OK Completed
```

Get the configured LDAP server port.

```
    Network> ldap get port
LDAP port:               555
OK Completed
```

Configure the base DN.

```
    Network> ldap set basedn dc=example,dc=com
OK Completed
```

Get the configured base DN.

```
    Network> ldap get basedn
LDAP base DN:             dc=example,dc=com
OK Completed
```

Configure LDAP over SSL to on.

```
    Network> ldap set ssl on
OK Completed
```

Get LDAP over SSL setting.

```
    Network> ldap get ssl
LDAP over SSL:            on
OK Completed
```

Configure the bind DN.

```
    Network> ldap set binddn cn=binduser,dc=example,dc=com
Enter password for 'cn=binduser,dc=example,dc=com': ********
OK Completed
```

Get the configured bind DN.

```
    Network> ldap get binddn
LDAP bind DN:             cn=binduser,dc=example,dc=com
OK Completed
```

Configure the root bind DN.

```
    Network> ldap set rootbinddn cn=rootuser,dc=example,dc=com
Enter password for 'cn=rootuser,dc=example,dc=com': ********
OK Completed
```

Get the configured root bind DN.

```
    Network> ldap get binddn
LDAP root bind DN:         cn=rootuser,dc=example,dc=com
OK Completed
```

Configure the password hash.

```
    Network> ldap set password-hash clear
OK Completed
```

Get the configured password hash.

```
    Network> ldap get password-hash
LDAP password hash:        clear
OK Completed
```

Configure the users base DN.

```
    Network> ldap set users-basedn ou=Users,dc=example,dc=com
OK Completed
```

Get the configured users base DN.

```
    Network> ldap get users-basedn
LDAP users base DN:      ou=Users,dc=example,dc=com
OK Completed
```

Configure the groups base DN.

```
    Network> ldap set groups-basedn ou=Groups,dc=example,dc=com
OK Completed
```

Get the configured groups base DN.

```
    Network> ldap get groups-basedn
LDAP groups base DN:      ou=Groups,dc=example,dc=com
OK Completed
```

Configure the netgroups base DN.

```
    Network> ldap set netgroups-basedn ou=Netgroups,dc=example,dc=com
OK Completed
```

Get the configured netgroups base DN.

```
    Network> ldap get netgroups-basedn
LDAP netgroups base DN:    ou=Netgroups,dc=example,dc=com
OK Completed
```

Clear a specified attribute.

```
    Network> ldap clear <attribute>
OK Completed
```

12.9.5 SEE ALSO

bond(1), dns(1), ip(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.10 loadbalance

12.10.1 SYNOPSIS

`loadbalance configure` [vip]

`loadbalance status`

`loadbalance remove`

12.10.2 DESCRIPTION

The network `loadbalance` command configures a single VIP to act as a load balancer which distributes the incoming request to the cluster. The command can also remove the load balance configuration.

12.10.3 OPTIONS

`loadbalance configure VIP` Configure the loadbalancer for given VIP.

`loadbalance status` Displays the loadbalance status.

`loadbalance remove` Remove the loadbalance configuration.

12.10.4 EXAMPLES

To configure the loadbalance.

```
Network> loadbalance configure 10.216.114.216
Loadbalancer configured successfully on VIP 10.216.114.216 using node clusternode_01␣
↪as router
```

To display the loadbalance status.

```
Network> loadbalance status

Status               : Enabled
Loadbalance Method   : Round Robin
Router Node          : iplb-beta_03
LoadbalanceIP        : 10.209.193.223

Node                 ActiveConn        InActConn
---------            ----------        ---------
iplb-beta_05         0                 1
iplb-beta_04         1                 0
iplb-beta_03         1                 0
iplb-beta_02         0                 1
iplb-beta_01         1                 0
```

To remove the loadbalance configuration.

```
Network> loadbalance remove
```

12.10.5 SEE ALSO

ipvsadm(1)

12.11 netgroup

12.11.1 SYNOPSIS

`netgroup add` *groupname memberlist*

`netgroup delete` *groupname* [*memberlist*]

`netgroup show` [*groupname*]

12.11.2 DESCRIPTION

The netgroup commands are used to view, add, or delete local netgroups.

The netgroup file defines "netgroups", which are sets of (host, user, domain) tuples, used for permission checking when doing remote mounts, remote logins and remote shells. Each line in the file consists of a netgroup name followed by a list of members, where a member is either another netgroup name, or a triple:

(`host,user,domain`)

where the host, user, and domain are character strings for the corresponding components. Any of the three fields can be empty, in which case specifies a "wildcard", or the string "-" to specify "no valid value". The domain field must either be the local domain name or empty for the netgroup entry to be used. This field does not limit the netgroup or provide security. The domain field refers to the domain in which the triple is valid, not the domain containing the the trusted host.

When exporting a directory by NFS with the specified options, clients may be specified in netgroups. Netgroups may be identified using `@group`. Only the host part of each netgroup member is considered when checking for membership:

```
NFS> share add rw,async /vx/fs1/share @client_group
```

Note, the netgroup takes effect only after adding "files" to the netgroup of Name Service Switch (NSS) configuration:

```
Network> nsswitch conf group files nis
```

When adding data to any existing netgroup, the new data cannot be the same as the existing data of that netgroup. If you are adding data to a non-existent netgroup, you need to create a new netgroup. You can delete the data of an existing netgroup. If you delete a netgroup without a member list, you delete the netgroup.

12.11.3 OPTIONS

groupname netgroup name.

memberlist comma-separated member list. A member can be an IPv4 address, IPv6 address, netgroup name, or a hostname. The hostname can include the characters: a-z| A-Z|0-9 or a hyphen (-). Each level of the hostname should between 1 and 63 characters long and should not start or end with a hyphen (-). The last TLD (Top Level Domain) must be at least two characters and a maximum of six characters. If the member is not a netgroup name, it will be filled in as the host.

`netgroup add` ***groupname memberlist*** Add members to an existing netgroup or create a new netgroup.

`netgroup delete` ***groupname*** **[*memberlist*]** Delete the members of an existing netgroup or delete netgroup.

`netgroup show` **[*groupname*]** Display the netgroup settings.

12.11.4 EXAMPLES

To create a netgroup with members another netgroup name, IPv4 address, IPv6 address, and hostname

```
    Network> netgroup add test_group2 vip,10.200.114.173,cdc.testhost.com,
↪2002:4559:1fe2:0:0:0:45:88

Network> netgroup show
Name                Member List
--------------      -----------
test_group1         192.168.0.8,cdc.myhost.com,2002:4559:1fe2:0:0:0:4559:1f
test_group2         vip,10.200.114.173,cdc.testhost.com,2002:4559:1fe2:0:0:0:45:88
```

To add members to an existing netgroup

```
Network> netgroup add test_group1 10.200.114.250

Network> netgroup show
Name                Member List
--------------      -----------
test_group1         10.200.114.250,192.168.0.8,cdc.myhost.com,
↪2002:4559:1fe2:0:0:0:4559:1f
test_group2         vip,10.200.114.173,cdc.testhost.com,2002:4559:1fe2:0:0:0:45:88
```

To delete members of an existing netgroup

```
    Network> netgroup delete test_group2 2002:4559:1fe2:0:0:0:45:88,cdc.testhost.com,
↪vip

Network> netgroup show
Name                Member List
--------------      -----------
test_group1         10.200.114.250,192.168.0.8,cdc.myhost.com,
↪2002:4559:1fe2:0:0:0:4559:1f
test_group2         10.200.114.173
```

To delete an existing netgroup

```
Network> netgroup delete test_group2

Network> netgroup show
Name                Member List
--------------      -----------
test_group1         10.200.114.250,192.168.0.8,cdc.myhost.com,
↪2002:4559:1fe2:0:0:0:4559:1f
```

Display the netgroup.

```
Network> netgroup show test_group1
Name                Member List
--------------      -----------
test_group1         192.168.0.8,cdc.myhost.com,2002:4559:1fe2:0:0:0:4559:1f
```

12.11.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.12 nis

12.12.1 SYNOPSIS

`nis show` [users|groups|netgroups]

`nis disable`

`nis enable`

`nis set servername` *servername*

`nis set domainname` [*domainname*]

12.12.2 DESCRIPTION

The network `nis` commands set or display the domain name on all of the nodes. The commands can also enable or disable NIS clients on all of the nodes.

12.12.3 OPTIONS

`nis show` Display the NIS server name and domain name.

`nis show users` Show NIS users that are available in the NIS database.

`nis show groups` Show NIS groups that are available in the NIS database.

`nis show netgroups` Show NIS netgroups that are available in the NIS database.

`nis disable` Disable the NIS clients on all the nodes.

`nis enable` Enable NIS clients on all the nodes.

`nis set servername` ***servername*** Set the NIS server name on all the nodes.

`nis set domainname` **[*domainname*]** Set the NIS domain name on all the nodes.

12.12.4 EXAMPLES

To display the current status of NIS.

```
    Network> nis show
NIS Status    : Disabled
domain        :
NIS Server    :
```

To display NIS netgroups that are available in the NIS database.

```
Network> nis show netgroups
NetGroupname         : netgrp3
Members of the Group : (testqa-13.testqa.com,-,-)
NetGroupname         : netgrp2
Members of the Group : (testqa-13.testqa.com,u2,-),(testqa-13.testqa.com,u1,-)
```

To display NIS groups that are available in the NIS database.

```
Network> nis show groups
Groupname            : webservd
Members of the Group :
Groupname            : sysadmin
Members of the Group :
Groupname            : noaccess
Members of the Group :
```

To display NIS users that are available in the NIS database.

```
Network> nis show users
User           : root
Name           : Super-User
uid            : 0
gid            : 0
Home Directory : /
Login Shell    : /sbin/sh

User           : u2
Name           :
uid            : 101
gid            : 1
Home Directory : /lhome/u2
Login Shell    : /bin/sh
```

To set the domain name.

```
Network> nis set domainname vxindia.veritas.com
Setting domainname: "vxindia.veritas.com"
```

To set the server name.

```
Network> nis set servername vmlxpx1.vxindia.veritas.com
Setting NIS Server "vmlxpx1.vxindia.veritas.com"
```

To enable NIS.

```
Network> nis enable
```

To check whether NIS is enabled or not, run the following command:

```
Network> nis show
NIS Status    : Enabled
domain        : vxindia.veritas.com
NIS Server    : vmlxpx1.vxindia.veritas.com
```

To disable the NIS.

```
Network> nis disable
```

12.12.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.13 nsswitch

12.13.1 SYNOPSIS

`nsswitch show`

`nsswitch conf` { group|hosts|netgroup|passwd|shadow } *value1 value2 value*

12.13.2 DESCRIPTION

The network `nsswitch` commands display or change the Name Service Switch (NSS) configuration.

12.13.3 OPTIONS

`nsswitch show` Display the name service switch configuration.

`nsswitch conf` **{ group|hosts|netgroup|passwd|shadow }** ***value1*** **[*value2*] [*value3*] [*value4*]**
Configure the method for the name service switch lookup process. Specify the name service switch lookup order with the following values:

value1: Choose the type {files} {files}

value2: Enter one of the following types { files | nis | winbind | ldap }

value3: Enter one of the following types { files | nis | winbind | ldap }

value4: Enter one of the following types { files | nis | winbind | ldap }

To configure `nsswitch conf host` *value1* [*value2*] [*value3*] enter the following:

value1: Choose the type {files} {files}

value2: Enter one of the following types { files | nis | dns }

value3: Enter one of the following types { files | nis | dns }

To configure `nsswitch conf netgroup` *value1* [*value2*] [*value3*], enter the following:

value1: Enter one of the following types { files | nis | winbind | ldap }

value2: Enter one of the following types { files | nis | winbind | ldap }

12.13.4 EXAMPLES

To display the current value set on nsswitch for all group, hosts, netgroup, passwd and shadow

```
Network> nsswitch show
group:      files     nis winbind    ldap
hosts:      files     nis            dns
netgroup:   files     nis
passwd:     files     nis winbind    ldap
shadow:     files     nis winbind
```

Change the order of the group items.

```
Network> nsswitch conf group nis files
```

Immediate effect of above command can be seen by using the show command.

```
Network> nsswitch show
 group:    files     nis
 hosts:    files     nis            dns
 netgroup: nis       files
 passwd:   files     nis winbind    ldap
 shadow:   files     nis winbind
```

To configure netgroup

```
Network> nsswitch conf netgroup files ldap nis
```

To configure passwd

```
Network> nsswitch conf passwd files winbind ldap nis
```

To configure shadow

```
Network> nsswitch conf shadow files winbind
```

12.13.5 SEE ALSO

bond(1), dns(1), ip(1), nis(1), ldap(1), netgroup(1), ping(1), show(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.14 show

12.14.1 SYNOPSIS

```
show
```

12.14.2 DESCRIPTION

The network `show` command displays the network configuration and statistics on all of the available nodes.

12.14.3 EXAMPLES

Show the network configuration and statistics.

```
va73> network show

Interface Statistics
--------------------

va73_01
-------------
Interfaces          MTU        RX-OK     RX-DROP      RX-ERR    RX-FRAME        TX-OK
↪ TX-DROP       TX-ERR       TX-CAR         Flag
        lo        65536        48138            0           0           0        48138
↪        0            0            0           LU
  eth2         1500       955874           18           0           0       912458
↪    0            0            0         BMRU
  eth3         1500       759216           18           0           0       647319
↪    0            0            0         BMRU
  eth0         1500      1757268          794           0           0        82759
↪    0            0            0         BMRU


va73_02
-------------
Interfaces          MTU        RX-OK     RX-DROP      RX-ERR    RX-FRAME        TX-OK
↪ TX-DROP       TX-ERR       TX-CAR         Flag
        lo        65536        27296            0           0           0        27296
↪        0            0            0           LU
  eth2         1500      1062983           14           0           0       805435
↪    0            0            0         BMRU
  eth3         1500       797769           14           0           0       608673
↪    0            0            0         BMRU
  eth0         1500      1761159          819           0           0        85103
↪    0            0            0         BMRU


Routing Table
-------------

va73_01
-------------
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
0.0.0.0         10.209.192.1    0.0.0.0         UG        0 0          0 eth0
```

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```
10.209.192.0    0.0.0.0         255.255.252.0   U         0 0          0 eth0
172.16.0.0      0.0.0.0         255.255.255.0   U         0 0          0 eth2


va73_02
-------------
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
0.0.0.0         10.209.192.1    0.0.0.0         UG        0 0          0 eth0
10.209.192.0    0.0.0.0         255.255.252.0   U         0 0          0 eth0
172.16.0.0      0.0.0.0         255.255.255.0   U         0 0          0 eth2
```

12.14.4 OUTPUT

Interface Statistics

Interfaces The name of the interface.

MTU The Maximum Transmission Unit of the interface.

RX-OK Number of received packets.

RX-DROP Number of dropped packets.

RX-ERR Number of error packets.

RX-FRAME Number of packets fails to end on byte boundary.

TX-OK Number of transmitted packets.

TX-DROP Number of dropped packets.

TX-ERR Number of error packets.

TX-CAR Number of carrier lost.

Flag

B: BROADCAST L: LOOPBACK M: MULTICAST R: RUNNING U: UP

Routing Table

Destination The destination network or destination host.

Gateway The gateway address or '*' if none set.

Genmask The netmask for the destination net; '255.255.255.255' for a host destination and '0.0.0.0' for the default route.

Flags U (route is up) H (target is a host) G (use gateway) R (reinstate route for dynamic routing) D (dynamically installed by daemon or redirect) M (modified from routing daemon or redirect) A (installed by addrconf) C (cache entry) ! (reject route)

Next Hop The the nexthop router of a multipath route.

Ref Number of references to this route.

Use Count of lookups for the route.

MSS Default maximum segment size for TCP connections over this route.

Window Default window size for TCP connections over this route.

irtt Initial RTT (Round Trip Time).

Iface Interface to which packets for this route will be sent.

12.14.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), ping(1), vlan(1), device(1), swap(1), pciexclusion(1)

12.15 swap

12.15.1 SYNOPSIS

`swap` *interface1 interface2* [*nodename*]

12.15.2 DESCRIPTION

The system `swap` command can be used for swapping two network interfaces of a node in a cluster. The System Administrator can use this command with a multi-node cluster only to swap public interfaces. On single node cluster, this command can be used to swap public as well as private interfaces. If input to the `swap` command contains one public and one private interface, and there are two separate switches for the private and the public network, then before running this command, the System Administrator has to exchange cable connections between these interfaces. This command requires stopping the given interfaces, and after running the `swap` command, all SSH connection(s) hosted on the input interfaces will terminate. The `swap` command helps set up the cluster properly in cases where the installation of the first node gateway cannot be pinged and is not to be used with a full-fledged system. It is not recommended that you use this command when you have some CIFS/NFS shares exported. You can check the status of the `swap` command under `history`.

12.15.3 OPTIONS

`swap` ***interface1 interface2 nodename*** Swap two network interfaces, interface1 and interface2.

interface1 : name of first interface.

interface2 : name of second interface.

nodename : name of node. If nodename is not provided, it is executed on the current node.

12.15.4 EXAMPLES

Swap two interfaces, where eth0 is a public and eth2 is a private device.

```
    Network> swap eth0 eth2 test_01
All ssh connection(s) to swapped interfaces need to start again after this command.
Do you want to continue [Enter "y/yes" to continue]...
```

Check status of this command in history.

12.15.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), vlan(1), device(1), pciexclusion(1)

12.16 vlan

12.16.1 SYNOPSIS

`vlan show`

`vlan add` *device vlan_id*

`vlan del` *vlan_device*

12.16.2 DESCRIPTION

The network `vlan` command is used to view, add, or delete VLAN interfaces.

By default `ip addr add` will not use VLAN devices unless explicity specified in the *device* attribute. By default, CIFS shares created using `share add` will not use virtual IPs based on VLAN devices, unless explicitly specified with *ip=* in share options.

When a VLAN device is deleted, physical IPs that are used by that VLAN device will automatically be freed, and can be seen in the output of `ip addr show` as unused. When a VLAN device is deleted, virtual IPs configured on that VLAN device will automatically be deleted and will no longer be visible in `ip addr show`.

12.16.3 OPTIONS

device Public device on which VLAN devices needs to be added.

vlan_id VLAN id which the new VLAN device should use. Valid values range from 1-4095.

vlan_device A VLAN device name is a combination of actual device on which the VLAN is based and the VLAN id separated by '.'.

`vlan show` Show the current VLAN devices.

`vlan add` ***device vlan_id*** Add a VLAN device on *device* with VLAN id as fIvlan_id.

`vlan del` ***vlan_device*** Delete the VLAN device named *vlan_device*.

12.16.4 EXAMPLES

Display the VLAN devices.

```
Network> vlan show
VLAN            DEVICE     VLAN id
----            ------     -------
eth0.2          eth0       2
```

To add a VLAN device with id 2 on eth1

```
Network> vlan add eth1 2

Network> vlan show
VLAN            DEVICE     VLAN id
----            ------     -------
eth0.2          eth0       2
eth1.2          eth1       2
```

To delete a VLAN device that is shown in the output of *vlan show*

```
Network> vlan del eth0.2

Network> vlan show
VLAN             DEVICE     VLAN id
----             ------     -------
eth1.2           eth1       2
```

12.16.5 SEE ALSO

bond(1), dns(1), ip(1), ldap(1), netgroup(1), nis(1), nsswitch(1), ping(1), show(1), device(1), swap(1), pciexclusion(1)

13

NFS Commands

13.1 nfs

13.1.1 SYNOPSIS

`server` [start|stop|status]

`stat show` [*nodename*]

`stat reset` [*nodename*]

`share add` *nfsoptions export_dir* [*client*]

`share delete` *export_dir* [*client*]

`share show`

`show fs`

13.1.2 DESCRIPTION

The `nfs` commands maintain the current table of exported file systems for the Network File System (NFS).

13.1.3 OPTIONS

nfsoptions Comma-separated list of export options from the set {ro, rw, sync, async, secure, insecure, secure_locks, insecure_locks, root_squash, no_root_squash, wdelay, no_wdelay, subtree_check, no_subtree_check, nordirplus, fsid=<number>}. For example: ro,root_squash; rw,secure,no_root_squash. The default export options are {ro, sync, secure, secure_locks, root_squash, wdelay, no_subtree_check}. The "no_wdelay" option has no effect if "async" is also set. fsid could be any number between 1 and 1073741823 and it must be unique among all exported paths.

wdelay: For backwards-compatibility, the wdelay and no_wdelay options are still supported, but the options are being deprecated. no_wdelay is the the only effective behavior regardless of setting wdelay or no_wdelay option. Clients can handle flushing of data using server COMMIT operations and UNSTABLE writes.

For NFS Ganesha exports, export options {secure_locks, insecure_locks, wdelay, no_wdelay, subtree_check, no_subtree_check, fsid=number} are not supported and will be ignored.

export_dir Path of the directory that needs to exported to the client. Path should start with /vx and only "a-zA-Z0-9_/.:-" characters are allowed in *export_dir*.

`server` [start|stop|status] Start, stop, or check the status of NFS resources.

`stat show` [*nodename*] Display NFS statistics for *nodename* or all the nodes in the cluster.

`stat reset` [*nodename*] Reset NFS statistics for *nodename* or all the nodes in the cluster to zero. Statistics are automatically reset to zero after reboot of a node.

`share add` *nfsoptions export_dir* [*client*] Export the directory with the specified options. Clients may be specified in the following ways: 1. Single host

Specify a host either by an abbreviated name recognized by the resolver, the fully qualified domain name, or an IP address.

2. Netgroups

Netgroups may be given as *@group*. Only the host part of each netgroup member is considered when checking for membership.

3. IP networks

You can also simultaneously export directories to all hosts on an IP (sub-) network. This is done by specifying an IP address and netmask pair as *address/netmask* where the netmask can be specified as a contiguous mask length. IPv4 or IPv6 addresses can be used.

If the *client* is not given, then the specified file system can be accessed or mounted by any client.

To re-export new options to an existing share, the new options will be updated after the command is run.

`share delete` *export_dir* [*client*] Unexport the directory.

`share show` List all of the exported resources.

`show fs` List all of the online file systems and snapshots that can be exported.

13.1.4 EXAMPLES

Start the NFS server. If the NFS server is already started, the start command clears any faults and then tries to start the NFS server.

```
NFS> server start
..Success.
```

Display the status of the NFS server.

```
NFS> server status
NFS Status on nas_01 : ONLINE
NFS Status on nas_02 : ONLINE
```

Stop the NFS server. You will receive an error if you try to stop an already stopped NFS server.

```
NFS> server stop
..Success.
```

Display the list of FS/snapshot.

```
NFS> show fs
FS/Snapshot
===========
fs1
```

Export the directory /vx/fs1 to every host allowing asynchronous writes.

```
NFS> share add rw,async /vx/fs1
Exporting \*:/vx/fs1 with options rw,async
..Success.
```

Show the exported file systems.

```
NFS> share show
/vx/fs1                              * (rw,async)
```

Unexport the directory /vx/fs1 from world.

```
NFS> share delete /vx/fs1
Removing export path \*:/vx/fs1
..Success.
```

13.1.5 SEE ALSO

server(1), share(1), stat(1)

13.2 server

13.2.1 SYNOPSIS

`server` [start|stop|status]

13.2.2 DESCRIPTION

The NFS `server` command starts, stops, or checks the status of the NFS resources.

13.2.3 OPTIONS

`server` [start|stop|status] Start, stop, or check the status of NFS resources.

13.2.4 EXAMPLES

Start the NFS server. If the NFS server is already started, Veritas Access clears the faults (if any), and then tries to start the NFS server.

```
NFS> server start
..Success.
```

Display the status of the NFS server.

```
NFS> server status
NFS Status on nas_01 : ONLINE
NFS Status on nas_02 : ONLINE
```

Stop the NFS server. You will receive an error if you try to stop an already stopped NFS server.

```
NFS> server stop
..Success.
```

13.2.5 SEE ALSO

share(1), stat(1)

13.3 share

13.3.1 SYNOPSIS

`share add` *nfsoptions export_dir* [*client*]

`share delete` *export_dir* [*client*]

`share show`

13.3.2 DESCRIPTION

The NFS `share` commands add, delete, or display the NFS share.

13.3.3 OPTIONS

nfsoptions Comma-separated list of export options from the set {ro, rw, sync, async, secure, insecure, secure_locks, insecure_locks, root_squash, no_root_squash, wdelay, no_wdelay, subtree_check, no_subtree_check, nordirplus, fsid=<number>}. For example: ro,root_squash; rw,secure,no_root_squash. The default export options are {ro, sync, secure, secure_locks, root_squash, wdelay, no_subtree_check}. The "no_wdelay" option has no effect if "async" is also set. fsid could be any number between 1 and 1073741823. fsid must be unique among all exported paths.

wdelay: For backwards-compatibility, the wdelay and no_wdelay options are still supported, but the options are being deprecated. The effective behavior is no_wdelay is used, even when wdelay is set. Clients can handle flushing of data using server COMMIT operations and UNSTABLE writes.

For NFS-Ganesha exports, export options {secure_locks, insecure_locks, wdelay, no_wdelay, subtree_check, no_subtree_check, fsid=number} are not supported and will be ignored.

export_dir Path of the directory that needs to exported to the client. The path should start with /vx and only 'a-zA-Z0-9_/.:-' characters are allowed in *export_dir*.

`share add` ***nfsoptions export_dir*** **[*client*]** Export the directory with the specified options. Clients may be specified in the following ways:

1. Single host

   Specify a host either by an abbreviated name recognized by the resolver, the fully qualified domain name, or an IP address.

2. Netgroups

   Netgroups may be given as *@group*. Only the host part of each netgroup member is considered when checking for membership.

3. IP networks

   You can also simultaneously export directories to all hosts on an IP (sub-) network. This is done by specifying an IP address and netmask pair as *address/netmask* where the netmask can be specified as a contiguous mask length. IPv4 addresses or IPv6 addresses can be used.

If the *client* is not given, then the specified file system can be accessed or mounted by any client.

To re-export new options to an existing share, the new options will be updated after the command is run.

`share delete` ***export_dir*** **[*client*]** Unexport the directory.

share show List all of the exported resources. You can use any of the VIPs to mount the NFS shares from the NFS client.

13.3.4 EXAMPLES

Export the directory /vx/fs1 to every host allowing asynchronous writes.

```
NFS> share add rw,async /vx/fs1
Exporting \*:/vx/fs1 with options rw,async
..Success.
```

Show the exported file systems.

```
NFS> share show
/vx/fs1                                 * (rw,async)
```

Unexport the directory /vx/fs1 from world.

```
NFS> share delete /vx/fs1
Removing export path \*:/vx/fs1
..Success.
```

13.3.5 SEE ALSO

server(1), stat(1)

13.4 show

13.4.1 SYNOPSIS

```
show fs
```

13.4.2 DESCRIPTION

The `show fs` command displays a list of all online file systems and snapshots that can be exported.

13.4.3 EXAMPLES

Display the list of file systems and snapshots.

```
NFS> show fs
FS/Snapshot
===========
fs1
```

13.4.4 SEE ALSO

share(1), server(1)

13.5 stat

13.5.1 SYNOPSIS

`stat show` [*nodename*]

`stat reset` [*nodename*]

13.5.2 DESCRIPTION

The NFS `stat` manages NFS statistics.

13.5.3 OPTIONS

`stat show` [*nodename*] Display NFS statistics for *nodename* or all nodes in the cluster.

`stat reset` [*nodename*] Reset NFS statistics for *nodename* or all the nodes in the cluster to zero. Statistics are automatically reset to zero after reboot of a node.

13.5.4 EXAMPLES

Show NFS statistics for all nodes in the cluster.

```
NFS> stat show all

node_01
-------
Server rpc stats:
calls       badcalls        badclnt         badauth         xdrcall
    0               0                       0                       0
↪       0

Server nfs v3:
null         getattr      setattr      lookup       access       readlink
    0 0%             0 0%         0 0%         0 0%         0 0%         0 0%
read         write        create       mkdir        symlink      mknod
    0 0%             0 0%         0 0%         0 0%         0 0%         0 0%
remove       rmdir        rename       link         readdir      readdirplus
    0 0%             0 0%         0 0%         0 0%         0 0%         0 0%
fsstat       fsinfo       pathconf     commit
    0 0%             0 0%         0 0%         0 0%

    Server nfs v4:
    null    compound
    0 0%    0 0%

    Server nfs v4 operations:
    op0-unused              op1-unused              op2-future      access
↪       close           commit
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    create                  delegpurge              delegreturn getattr
↪getfh           link
```

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```
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    lock                    lockt                   locku           lookup
↪       lookup_root nverify
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    open                    openattr                open_conf       open_dgrd
↪       putfh           putpubfh
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    putrootfh               read                    readdir         readlink
↪       remove          rename
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    renew                   restorefh               savefh          secinfo
↪       setattr         setcltid
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    setcltid                confverify              write           rellockowner
↪bc_ctl          bind_conn
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    exchange_id     create_ses              destroy_ses free_stateid
↪getdirdeleg getdevinfo
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    getdevlist              layoutcommit    layoutget       layoutreturn
↪secinfononam sequence
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    set_ssv                 test_stateid    want_deleg      destroy_clid    reclaim_
↪comp
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%

node_02
-------
Server rpc stats:
calls       badcalls        badclnt badauth xdrcall
    0               0                       0               0               0

Server nfs v3:
null         getattr      setattr      lookup       access       readlink
    0 0%             0 0%             0 0%             0 0%                0 0%
↪       0 0%
read         write        create       mkdir        symlink      mknod
    0 0%             0 0%             0 0%             0 0%                0 0%
↪       0 0%
remove       rmdir        rename       link         readdir      readdirplus
    0 0%             0 0%             0 0%             0 0%                0 0%
↪       0 0%
fsstat       fsinfo       pathconf     commit
    0 0%             0 0%             0 0%             0 0%

    Server nfs v4:
    null    compound
    0 0%    0 0%
```

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```
    Server nfs v4 operations:
    op0-unused              op1-unused              op2-future      access
↪       close           commit
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    create                  delegpurge              delegreturn getattr
↪getfh           link
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    lock                    lockt                   locku           lookup
↪       lookup_root nverify
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    open                    openattr                open_conf       open_dgrd
↪       putfh           putpubfh
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    putrootfh               read                    readdir         readlink
↪       remove          rename
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    renew                   restorefh               savefh          secinfo
↪       setattr         setcltid
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    setcltid                confverify              write           rellockowner
↪bc_ctl          bind_conn
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    exchange_id     create_ses              destroy_ses free_stateid
↪getdirdeleg getdevinfo
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    getdevlist              layoutcommit    layoutget       layoutreturn
↪secinfononam sequence
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%            0 0%
    set_ssv                 test_stateid    want_deleg      destroy_clid    reclaim_
↪comp
    0 0%                    0 0%                    0 0%            0 0%
↪       0 0%


NFS>
```

Reset NFS statistics to zero on node_02.

```
NFS> stat reset node_02
Success.
```

13.5.5 SEE ALSO

share(1), server(1)

14 Object Access Commands

14.1 ObjectAccess

14.1.1 SYNOPSIS

`account` user show

`bucket` show [bucket_name]

`bucket` delete bucket_name

`bucket` worm get bucket_name

`bucket` worm set minret maxret bucket_name

`group` [set|show|unset]

`object` retention get object_path version_id

`object` retention set object_path retention_time version_id

`server` [enable|start|stop|status|disable]

`set` [ssl_enabled|pools|fs_size|fs_type|fs_worm|data_endpoints|admin_endpoints|retention]

`unset` [pools pool1[,pool2,...]|data_endpoints|admin_endpoints]

`map` filesystem_path username

`show`

`certificate` [show|renew]

14.1.2 DESCRIPTION

The ObjectAccess commands are used to manage the object access service, to show the status of the service, to set and unset the default or group specific configuration, and to manage the buckets accessed using the Amazon S3 protocol.

The following are the steps to configure and use the Veritas object access service.

1. Set up the default runtime configuration options. You need to set at least one default pool. For example, `objectaccess set pools slow_pool`.
2. Enable the object access server.

3. Start the object access server.

The object access server creates a new file system for every new bucket. The type, size and pools for the new file system should be configured correctly by using the objectaccess `set` command. You can also enable the Write-Once-Read-Many (WORM) attribute for the file system by setting `fs_worm` option to yes. If the `group set fs_sharing` option is set to no, a new file system is created for the bucket every time. If the `group set fs_sharing` option is set to yes, then new buckets are created under the existing file system. If the administrator expects a large number of buckets to be created, the administrator can choose to share the same file system across all the users of the given group.

See the `objectaccess_group man` page for more information.

You cannot start the object access service until you have enabled it.

4. Configure NIS/LDAP/AD with Veritas Access and create keys for user authentication.

The object access server provides a custom REST-based API to create an access key and a secret key. The REST APIs use password-based authentication. It is recommended to always set `ssl_enabled` for the server. See the *Veritas Access RESTful API Guide* for more information.

5. Set up user groups.

The object access server can be configured to use specific configurations based on the requester user's group. An administrator can override the file system type, size, pools and WORM attrbute which should be used for a particular group. These group-specific options override the default options. For users that are not part of any pre-configured object access groups, the server uses the default configuration to create the file system.

Consider a pool, slow_pool, is created consisting of HDDs, and slow_pool is configured as the default pool. The default pool, slow_pool, applies to all users.

Consider a pool, fast_pool, is created consisting of only SSDs, and you want some users to use fast_pool for creating their buckets instead of the default slow_pool, then use the `group` options.

6. Use the object access server using an S3-API compatible client.

14.1.3 OPTIONS

`account` user [show] List the S3 users.

`bucket` show [bucket_name]|delete bucket_name List the buckets created by the S3 users.

:`bucket` delete bucket_name Delete a bucket.

`bucket` worm get bucket_name Lists WORM status, minimum and maximum retention period for specified bucket. Retention values are in seconds.

`bucket` worm set minret maxret bucket_name Enable WORM and set or update minimum and maximum retention values for the underlying file system. This command is not supported in normal lockdown mode. minret and maxret can also be set to vxdefault. 'vxdefault' unsets already set value.

group [set|show|unset] Groups allow an administrator to override the default file system configuration parameters. This gives fine control over how the object access server creates file systems and buckets for particular user groups. It is recommended to create new groups using the authentication server (NIS/LDAP/AD) based on your storage requirements and use them for this group configuration.

`server` [enable|start|stop|status|disable] Start, stop, or check the status of the object access service. The server must be enabled before starting. Disabling the server deletes the object access configuration and user information database. All S3 buckets must be deleted before disabling the object access server.

set [ssl_enabled|pools|fs_size|fs_type|fs_worm|data_endpoints|admin_endpoints|retention] Set object access configurable and default file system options. The object access server creates a new file system for every new bucket. Use the `set` command to create a new file system of a different configuration. The `ssl_enabled` option enables HTTPS access. The data_endpoints and admin_endpoints options allow you to set endpoints of your choice. The default endpoints are s3.<clustername> and admin.<clustername>. you can set a maximum of four endpoints. The `pools` option lets you choose the pool on which the bucket has to be created. Use the `fs_size` option to set the default fs_size for the buckets. Use the `fs_worm` option to set the default value of the WORM attribute for the file systems for the bucket. Use the `retention min` and `retention max` option to set default values for minimum and maximum retention time for file systems for the bucket. The values are measured in seconds and vxdefault will unset the default values of retention.

unset [pools pool1[,pool2,...]|data_endpoints|admin_endpoints] Remove pools from the default pool list or remove the added enpoints to use default system generated endpoints. Removing all pools is not allowed as object access requires at least one default pool.

show List all the object access configurable options.

map filesystem_path username Map filesytem path as a bucket for a particular user. If filesystem path is not present then map command would create the directory and set the default S3 bucket permissions. The ownership to the bucket will be set to the user and it's group. Filesystem path should not be in a directory inside exported nfs share or inside existing bucket. Buket name will be same as a directory name.

certificate show|renew Perform certificate operations. The `show` option displays the CA certificate. The `renew` option renews the SSL certificate of the objectaccess server. This option also renews the CA certificate, if it has expired

object retention get object_path Get the retention time of a given object. If version id is passed, retention on object with given version id is returned. If version id is not passed, retention on latest versioned object is returned.

object retention set object_path retention_time Set the retention time on given object. If version id is passed, retention is set on object with given version id. If version id is not passed, retention is set on latest versioned object.

14.1.4 EXAMPLES

Enable the object access service.

```
earth.ObjectAccess> server enable
100% [********************] Enabling ObjectAccess server.
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess server enabled.
```

Start the object access service.

```
earth.ObjectAccess> server start
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess started successfully.
```

Display the status of the object access service.

```
earth.ObjectAccess> server status
ObjectAccess Status on earth_01 : ONLINE
ObjectAccess Status on earth_02 : ONLINE
```

Stop the object access service.

```
earth.ObjectAccess> server stop
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess stopped successfully.
```

Disable the object access service.

```
earth.ObjectAccess> server disable
This operation will delete ObjectAccess authentication information, do you
want to continue(y/n): y
100% [********************] Disabling ObjectAccess server.
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess server disabled.
```

Display the configuration of the object access service.

```
earth.ObjectAccess> show
Name            Value
=============  ==========================
Server Status  Disabled
Admin_URL      http://admin.earth:8144
S3_URL         http://s3.earth:8143
admin_port     8144
s3_port        8143
ssl            no
fs_size        20G
pools          pool1,pool2
fs_blksize     8192
fs_pdirenable  no
fs_encrypt     off
fs_type        mirrored
fs_nmirrors    2
fs_protection  disk
fs_worm        yes
retention_min  3600s
retention_max  5400s
```

List the S3 users.

```
earth.ObjectAccess> account user show
AccessKey             UserName
==================  ================
MzhiNzRlNDQ1MDQ1YjB  user1
M2UzZmQzMTk1MjU2MDY  nis-user1-group1
ZTMyYTRlYWMwNTE4ZDV  nis-user1-group3
```

List the buckets created by the S3 users.

```
earth.ObjectAccess> bucket show
Bucket Name                Fs Name          Pool          Owner
========================  ==============  ===========  ================
nis-user1-group1bucket13  S3fs1489227391  pool-group1  nis-user1-group1
nis-user1-group1bucket12  S3fs1489224108  pool-s3_2    nis-user1-group1
nis-user1-group1bucket11  S3fs1489224886  pool-s3_2    nis-user1-group1
nis-user1-group1bucket14  S3fs1489227391  pool-group1  nis-user1-group1
nis-user1-group1bucket1   S3fs1489224561  pool-s3_2    nis-user1-group1
moonbucket1               S3fs1489224108  pool-s3_2    user1
nis-user1-group3bucket1   S3fs1489229942  pool-s3_2    nis-user1-group3
```

List the bucket details for the specific bucket.

```
earth.ObjectAccess> bucket show nis-user1-group1bucket13
Bucket Name                Fs Name          Pool          Owner
=========================  ==============   ===========   ================
nis-user1-group1bucket13   S3fs1489227391   pool-group1   nis-user1-group1
```

Delete a bucket

```
earth.ObjectAccess> bucket delete bucket1
Access_Key: MDk4MmI2N2Q5MDA1ODc
Secret_Key:
ACCESS ObjectAccess SUCCESS V-493-10-0 Bucket deleted successfully
```

List WORM attributes for specified bucket

```
ObjectAccess> bucket worm get bucket2
WORM Enabled :  Yes
Min Retention:  86400s
Max Retention:  345600s

ObjectAccess> bucket worm get bucket5
WORM Enabled :  No
Min Retention:
Max Retention:
```

Set retention time on bucket

```
ObjectAccess> bucket worm set 1y 2y bucket1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket bucket1.

ObjectAccess> bucket worm set 10d vxdefault fs1-b1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket fs1-b1.

ObjectAccess> bucket worm set vxdefault 20d fs1-b1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket fs1-b1.
```

Enable secure socket communication for the object access server.

```
earth.ObjectAccess> set ssl_enabled yes
ACCESS ObjectAccess INFO V-288-0 Set ssl-enabled successful.
ACCESS SSL INFO V-288-0 Note: Please restart the objectaccess server.
```

Set the default pool(s), which are used to create the file system while creating the buckets. This default pool can be overridden by setting up group-specific options by using the `set` command.

```
earth.ObjectAccess> set pools pool1,pool2
ACCESS ObjectAccess INFO V-288-0 Set pools successful. Please make sure the storage␣
↪is provisioned as per the requirements of the layout.
```

Set the default file system size that should be used while creating the file system for a given bucket. This default `fs_size` can be overridden by setting up group-specific options by using the `set` command.

```
earth.ObjectAccess> set fs_size 10G
ACCESS ObjectAccess INFO V-288-0 Set operation successful.
```

Set the default file system WORM attribute that should be used while creating the file system for a given bucket. This default `fs_worm` can be overridden by setting up group-specific options by using the `set` command.

```
earth.ObjectAccess> set fs_worm yes
ACCESS ObjectAccess INFO V-493-10-0 Set fs_worm operation successful.
```

Set the default file system minimum and maximum retention value that should be used while creating the file system for a given bucket. This default `retention max` and `retention min` can be overridden by using the `set` command.

```
earth.ObjectAccess> set retention min 3600s
ACCESS ObjectAccess INFO V-493-10-3634 Set retention min successful.

earth.ObjectAccess> set retention max 5400s
ACCESS ObjectAccess INFO V-493-10-3634 Set retention max successful.
```

Set the group's pool mapping. In the following example, all the buckets of nis-group1 get created on pool-group1.

```
earth.ObjectAccess> group set pool nis-group1 pool-group1
ACCESS ObjectAccess INFO V-288-0 Set pool successful.
```

Set the group's file system type.

```
earth.ObjectAccess> group set fs_type simple nis-group1 blksize=1024 pdir_enable=no␣
↪encrypt=off
ACCESS ObjectAccess INFO V-288-0 Set pool successful.
```

Set the group's file system size.

```
earth.ObjectAccess> group set fs_size nis-group1 5G
ACCESS ObjectAccess INFO V-288-0 Set fs_size successful.
```

Set the group's file system sharing.

```
earth.ObjectAccess> group set fs_sharing nis-group1 yes
ACCESS ObjectAccess INFO V-288-0 Set fs_sharing successful.
```

Set the WORM attribute for group's file system.

```
earth.ObjectAccess> group set fs_worm nis-group1 yes
ACCESS ObjectAccess INFO V-493-10-0 Group set worm successful.
```

Unset the group's pool mapping.

```
earth.ObjectAccess> group unset pool nis-group1 pool-group1
ACCESS ObjectAccess INFO V-288-0 group unset pool Successful.
```

Unset the group's fs_sharing.

```
earth.ObjectAccess> group unset fs_sharing nis-group1
ACCESS ObjectAccess INFO V-288-0 group unset fs_sharing Successful.
```

Unset the group's fs_size.

```
earth.ObjectAccess> group unset fs_size nis-group1
ACCESS ObjectAccess INFO V-288-0 group unset fs_size Successful.
```

Unset the WORM attribute for the file systems for the group.

```
earth.ObjectAccess> group unset nis-group1 fs_worm
ACCESS ObjectAccess INFO V-493-10-3643 group unset fs_worm Successful.
```

Show the group's configuration details.

```
earth.ObjectAccess> group show
Group Name   Fs Sharing   Fs Size   Fs Type   Pool
==========  ==========  ========  ========  ===============
nis-group1   yes          5G        simple    pool-group1
```

Map file system path as bucket for a particular user.

```
earth.ObjectAccess> map /vx/fs1/dir1 s3user1
ACCESS ObjectAccess SUCCESS V-288-0 Successfully mapped bucket dir1 to s3user1.
```

Display certificate information.

```
clus.ObjectAccess> certificate show
Type                       Self-signed
CA certificate expiry      Dec 20 19:14:09 2023 GMT
Server certificate expiry  Dec 20 19:14:10 2021 GMT
CA server                  -----BEGIN CERTIFICATE-----
MIIDhTCCAm2gAwIBAgIJANLUO5FmRwI/MA0GCSqGSIb3DQEBCwUAMFkxCzAJBgNV
BAYTAlVTMRMwEQYDVQQIDApDYWxpZm9ybmlhMRAwDgYDVQQKDAdWZXJpdGFzMQ8w
DQYDVQQLDAZBY2Nlc3MxEjAQBgNVBAMMCXMzLmFjY2VzczAeFw0yMDEyMjAxOTE0
MDlaFw0yMzEyMjAxOTE0MDlaMFkxCzAJBgNVBAYTAlVTMRMwEQYDVQQIDApDYWxp
Zm9ybmlhMRAwDgYDVQQKDAdWZXJpdGFzMQ8wDQYDVQQLDAZBY2Nlc3MxEjAQBgNV
BAMMCXMzLmFjY2VzczCCASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAMk2
wV3gYABuqTrvgTw17S8hIEZ8B5CjWgBFBknmd0PW3nBoEVUiqd3V2V940Pgos2U4
o2oB6M+FskflXzYURmOI0aVlBOuNY2PFwxqDRVgKrL25M7LME3vJx1gnAHSh4hWF
OHf7QgC9BYhVw9/bJFOYiSEdou53t1CZbGxk+FFMHqtRpWGxxK/EFcBPxziab3LF
gVyLUBp8SGy40IWLZNnwi5LvvW+E/zImllOw6Uhgn332UfowR8YfPuWFF8vzxOY7
EFUoOu474kE9DN1Prq5Zyf0kzdZ2YbTq2AXk9TUX6r9M50w+1kA0J1MyYfmEo7A5
m3Uap40uGWh9EujxxIMCAwEAAaNQME4wHQYDVR0OBBYEFBXhuA7Ykaq8DaxFPbMR
CUAkUgpjMB8GA1UdIwQYMBaAFBXhuA7Ykaq8DaxFPbMRCUAkUgpjMAwGA1UdEwQF
MAMBAf8wDQYJKoZIhvcNAQELBQADggEBAIAFbgZpM+27Rd0tnqnyWugpSIaobCgv
VXkOf+zsKFSCbjKm8Ujt6joBFrAmykId60jd9aEKxYAU7Am+8n1fXURhcyCLedYZ
Nq1vCmGyJvm922orWkXxwLoGgNR6Rd7fjWwOqBU1gW2XNnFcyr+NF085ipSlApkQ
qgfg5sJPABWWyJxcoge/1ZdcDXM498ia+eZo8ysd/9t1W653wgnWJAObjeTKBG4z
Q+ZJHNVP4nhlPghYzBBWrSlnTHuLzF3Jfvjoq2bL5xQ94xldojv6OCuvGlAaFxFM
YaafT7U+8yJt3n0hryMjb1K1+tn3dW3+FqJt34Pg3RS5HjkdVg9iO9I=
-----END CERTIFICATE-----
```

Renew certificate

```
Renew server certificate :

access.ObjectAccess> certificate renew server_cert
ACCESS ObjectAccess SUCCESS V-493-10-0 Certificate renewal successful

Renew CA certificate :
access.ObjectAccess> certificate renew CA_cert
ACCESS ObjectAccess SUCCESS V-493-10-0 Certificate renewal successful
```

Get retention time on object

```
ObjectAccess> object retention get bkt4/obj1 3
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj1, version 3 is 11-24-2021 12:26:27 GMT

ObjectAccess> object retention get bkt4/obj2/ 1
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj2/, version 1 is 11-19-2021 10:31:01 GMT

ObjectAccess> object retention get bkt4/obj2/
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj2/, version c is 11-24-2021 12:36:04 GMT
```

Set retention time on object

```
ObjectAccess> object retention set bkt4/obj3 11-25-2021:04:04:12
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 11-25-2021
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 1M
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 1y
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 0
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj1 1d 3
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 3 of object bkt4/obj1

ObjectAccess> object retention set bkt4/obj2/ 1H 1
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj2/

ObjectAccess> object retention set bkt4/obj2/ 3600s
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version c of object bkt4/obj2/
```

14.1.5 SEE ALSO

account(1), group(1), bucket(1), server(1), show(1), set(1), unset(1), map(1), object(1)

14.2 account

14.2.1 SYNOPSIS

`account` user show

14.2.2 DESCRIPTION

The ObjectAccess `account` command is used to list the S3 users.

14.2.3 OPTIONS

`account` user show List the S3 users.

14.2.4 EXAMPLES

List the S3 users.

```
earth.ObjectAccess> account user show
AccessKey             UserName
====================  ================
MzhiNzRlNDQ1MDQ1YjB   user1
M2UzZmQzMTk1MjU2MDY   nis-user1-group1
ZTMyYTRlYWMwNTE4ZDV   nis-user1-group3
```

14.2.5 SEE ALSO

objectaccess(1)

14.3 bucket

14.3.1 SYNOPSIS

`bucket` show [bucket_name]

`bucket` delete bucket_name

`bucket` worm get bucket_name

`bucket` worm set minret maxret bucket_name

14.3.2 DESCRIPTION

The ObjectAccess `bucket show` command is used to list the buckets created by the S3 users.

14.3.3 OPTIONS

`bucket` [show] List the buckets created by the S3 users.

:`bucket` delete bucket_name Delete a bucket.

`bucket` worm get bucket_name Lists WORM status, minimum and maximum retention period for specified bucket. Retention values are in seconds.

`bucket` worm set minret maxret bucket_name Enable WORM and set or update minimum and maximum retention values for the underlying file system. This command is not supported in normal lockdown mode. minret and maxret can also be set to vxdefault. 'vxdefault' unsets already set value.

14.3.4 EXAMPLES

List the buckets created by the S3 users.

```
earth.ObjectAccess> bucket show
Bucket Name                FileSystem         Pool(s)      Owner
=========================  ==============  ===========  ================
nis-user1-group1bucket13   S3fs1489227391  pool-group1  nis-user1-group1
nis-user1-group1bucket12   S3fs1489224108  pool-s3_2    nis-user1-group1
nis-user1-group1bucket11   S3fs1489224886  pool-s3_2    nis-user1-group1
nis-user1-group1bucket14   S3fs1489227391  pool-group1  nis-user1-group1
nis-user1-group1bucket1    S3fs1489224561  pool-s3_2    nis-user1-group1
moonbucket1                S3fs1489224108  pool-s3_2    user1
nis-user1-group3bucket1    S3fs1489229942  pool-s3_2    nis-user1-group3
scale-out-bucket1          S3fs1489230130  pool-group2  nis-user1-group4

earth.ObjectAccess> bucket show nis-user1-group1bucket13
Bucket Name                FileSystem         Pool(s)      Owner
=========================  ==============  ===========  ================
nis-user1-group1bucket13   S3fs1489227391  pool-group1  nis-user1-group1
```

Delete a bucket.

```
earth.ObjectAccess> bucket delete bucket1
Access_Key: MDk4MmI2N2Q5MDA1ODc
Secret_Key:
ACCESS ObjectAccess SUCCESS V-493-10-0 Bucket deleted successfully
```

List WORM attributes for specified bucket

```
ObjectAccess> bucket worm get bucket2
WORM Enabled :  Yes
Min Retention:  86400s
Max Retention:  345600s

ObjectAccess> bucket worm get bucket5
WORM Enabled :  No
Min Retention:
Max Retention:
```

Set retention time on bucket

```
ObjectAccess> bucket worm set 1y 2y bucket1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket bucket1.

ObjectAccess> bucket worm set 10d vxdefault fs1-b1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket fs1-b1.

ObjectAccess> bucket worm set vxdefault 20d fs1-b1
ACCESS ObjectAccess SUCCESS V-493-10-0 Successfully set the retention values for␣
↪underlying FS of bucket fs1-b1.
```

14.3.5 SEE ALSO

objectaccess(1)

14.4 certificate

14.4.1 SYNOPSIS

`server` [renew|show]

14.4.2 DESCRIPTION

The ObjectAccess `certificate` commands are used to renew the CA and server certificates and to show the certificate information.

14.4.3 OPTIONS

`server` [renew|show] renew or show the certificates information.

14.4.4 EXAMPLES

Renew the server certificate.

```
access.ObjectAccess> certificate renew server_cert
ACCESS ObjectAccess SUCCESS V-493-10-0 Certificate renewal successful
```

Renew the CA certificate.

```
access.ObjectAccess> certificate renew CA_cert
ACCESS ObjectAccess SUCCESS V-493-10-0 Certificate renewal successful
```

Display certificate information.

```
access.ObjectAccess> certificate show
Type                        Self-signed
CA certificate expiry       Mar 25 18:38:36 2022 GMT
Server certificate expiry   Mar 25 18:38:36 2020 GMT
CA certificate              -----BEGIN CERTIFICATE-----
MIIDhTCCAm2gAwIBAgIJAO97GF5lBr68MA0GCSqGSIb3DQEBCwUAMFkxCzAJBgNV
BAYTAlVTMRMwEQYDVQQIDApDYWxpZm9ybmlhMRAwDgYDVQQKDAdWZXJpdGFzMQ8w
DQYDVQQLDAZBY2Nlc3MxEjAQBgNVBAMMCWFjY2Vzcy5jYTAeFw0xOTAzMjYxODM4
MzZaFw0yMjAzMjUxODM4MzZaMFkxCzAJBgNVBAYTAlVTMRMwEQYDVQQIDApDYWxp
Zm9ybmlhMRAwDgYDVQQKDAdWZXJpdGFzMQ8wDQYDVQQLDAZBY2Nlc3MxEjAQBgNV
BAMMCWFjY2Vzcy5jYTCCASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAKst
0HnlBbKAqn9mWTppbeb6MamDNLUBIsGSyRbSLkrV9NZGUV3Bw+Lp5j0TquNauNmi
uod8rbdcawN7GKvDJ0+ajN2aIFLpUPTsK1nB07pojKCCEbYK5d/pkehbV7/MUxdd
VffpN3IeivoNftgP4JWgsGBlZqN+PcyabYQAU7jztQ+GYn/m18tV6a97XOuppm7o
1XaNUzpCx4hh/2iED2k7fYDF7aNYEf+DfypaRhisRr5ZbPAlfgEWK/e4UIRNEVc9
GP9j2yIbAFqNYO2AgHK1EA2VW4aSm0WC8ouzqmi9vSo6QAX8E+p547sIvEyDlQKd
Vj363HE/KPXg9oo2DRECAwEAAaNQME4wHQYDVR0OBBYEFN0M3F6l49dl+h/l0cPt
3dC9ZzpKMB8GA1UdIwQYMBaAFN0M3F6l49dl+h/l0cPt3dC9ZzpKMAwGA1UdEwQF
MAMBAf8wDQYJKoZIhvcNAQELBQADggEBAB5X3zy5t9ApXMGOwt5s6WwA5c2GwAjB
qqaUN7ZQOqCgA/cRcR0ZQaU7oq/npUfPbRojKg6NqGwJAVk07bGBhOSSB7EHooBX
p6ofm3o49MavkSATUu9k083M8EQL9ohrn4G+GoG86PwX7w5D5vrUhMBwAbikzdRO
mMpKz/ZD9WuZkS+Zu31tigI06cJMe6FlbPycWhW++PCBxM5RQX+6LKJETIti5bBA
RSg0KQkn946kS/N/Bv9PYOkwNiU2gh2ZO/Sf5tiC6mplhDG1E8WbkmAgrHofnyCg
```

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```
Q9w17yZCcOYSp5BtPy4OCLuy6+jI60IiF3xX+AgohnOLk5xVfB0YhZ8=
-----END CERTIFICATE-----
```

14.4.5 SEE ALSO

objectaccess(1)

14.5 group

14.5.1 SYNOPSIS

`group` set [fs_sharing|fs_size|fs_type|pools|fs_worm] *group_name value*

`group` show [group_name]

`group` unset *group_name* [fs_sharing|fs_size|fs_type|pool|fs_worm]

14.5.2 DESCRIPTION

The ObjectAccess `group` commands allow an administrator to override the default file system configuration parameters. This gives fine control over how the object access server creates file systems and buckets for particular user groups. It is recommended to create new groups using the authentication server (NIS/LDAP/AD) and use them for this group configuration.

14.5.3 OPTIONS

group set [fs_sharing|fs_size|fs_type|pools|fs_worm] ***group_name value*** The `fs_sharing` option determines whether to create a new file system or to use an existing file system for creating the bucket. The `fs_size` and `fs_type` option allow you to set size and type of the file system for the group if any configuration parameters are not set. The `pools` option lets you choose the pool on which the bucket has to be created. The `fs_worm` option determines whether WORM is enabled during the creation of the file system. If any configuration parameter is not set then it will pick from default configuration.

group show [group_name] Lists group specific configurations for all the groups. If group name is specificed, it will give all configuration details for that group.

group unset *group_name* [fs_sharing|fs_size|fs_type|pool|fs_worm] Removes the option set for the specific group.

14.5.4 EXAMPLES

Set the group's pool mapping. In the following example, all the buckets of nis-group1 get created on pool-group1.

```
earth.ObjectAccess> group set pool nis-group1 pool-group1
ACCESS ObjectAccess INFO V-288-0 Set pool successful.
```

Set the group's file system type.

```
earth.ObjectAccess> group set fs_type simple nis-group1 blksize=1024 pdir_enable=no␣
↪encrypt=off
ACCESS ObjectAccess INFO V-288-0 Set pool successful.
```

Set the group's file system size.

```
earth.ObjectAccess> group set fs_size nis-group1 5G
ACCESS ObjectAccess INFO V-288-0 Set fs_size successful.
```

Set the group's file system sharing.

```
earth.ObjectAccess> group set fs_sharing nis-group1 yes
ACCESS ObjectAccess INFO V-288-0 Set fs_sharing successful.
```

Set the value of the WORM attribute for the group's file system.

```
earth.ObjectAccess> group set fs_worm nis-group1 yes
ACCESS ObjectAccess INFO V-493-10-0 Set fs_worm operation successful.
```

Unset the group's pool mapping.

```
earth.ObjectAccess> group unset nis-group1 pool pool-group1
ACCESS ObjectAccess INFO V-288-0 group unset pool Successful.
```

Unset the group's fs_sharing.

```
earth.ObjectAccess> group unset nis-group1 fs_sharing
ACCESS ObjectAccess INFO V-288-0 group unset fs_sharing Successful.
```

Unset the group's fs_type.

```
earth.ObjectAccess> group unset nis-group1 fs_type
ACCESS ObjectAccess INFO V-288-0 group unset fs_type Successful.
```

Unset the value of the WORM attribute for the group's file system.

```
earth.ObjectAccess> group unset nis-group1 fs_worm
ACCESS ObjectAccess INFO V-493-10-3643 group unset fs_worm Successful.
```

Unset the group's fs_size.

```
earth.ObjectAccess> group unset nis-group1 fs_size
ACCESS ObjectAccess INFO V-288-0 group unset fs_size Successful.
```

Show the group's configuration details.

```
moon.ObjectAccess> group show
Group Name   Fs Sharing   Fs Size   Fs Type   Pool(s)
==========  ==========  ========  ========  ==========
nis-group1   yes          5G        simple    pool-group1

moon.ObjectAccess> group show nis-group1
Name           Value
=============  ===========
Group          nis-group1
poollist       pool-group1
fs_sharing     yes
fs_size        5G
fs_type        simple
fs_blksize     1024
fs_pdirenable  no
fs_encrypt     off
fs_type        simple
```

14.5.5 SEE ALSO

objectaccess(1)

14.6 map

14.6.1 SYNOPSIS

`map` filesystem_path username

14.6.2 DESCRIPTION

Map the specific path as an S3 bucket for a particular user. The file system path can be either a directory inside a normal file system or an NFS exported path. If the specified path is not present, then the map command creates the directory and sets the default S3 bucket permissions. The ownership of the bucket is set to the user and it's group. The file system path should not be a directory inside the exported NFS share or the existing bucket. The bucket name is the same as the directory name. Admin can check the path mapping with the bucket show command.

14.6.3 OPTIONS

`map` filesystem_path username

Map filesystem_path as a S3 bucket for user username. Path can be any directory path inside the file system or nfs exported path. User can be any authenticated user from AD/LDAP/NIS.

14.6.4 EXAMPLES

Map the file system path in which directory is not present as an S3 bucket.

```
vmdellr> objectaccess map /vx/simple_fs/dir2 domain1/ad-user2
ACCESS ObjectAccess SUCCESS V-288-0 Successfully mapped bucket dir2 to domain1/ad-
↪user2.
```

Map the file system path in which directory is already present as an S3 bucket.

```
vmdellr> objectaccess map /vx/simple_fs/dir6 user2
This operation will change the ownership of directory '/vx/simple_fs/dir6' to user
↪'user2' and will affect existing permissions. Do you want to continue (yes/no)? yes
ACCESS ObjectAccess SUCCESS V-288-0 Successfully mapped bucket dir6 to user2.
```

Map the nfs share path as an S3 bucket.

```
vmdellr> objectaccess map /vx/simple_fs/dir4 user2
This operation will change the ownership of directory '/vx/simple_fs/dir4' to user
↪'user2' and will affect existing permissions. Do you want to continue (yes/no)? yes
ACCESS ObjectAccess SUCCESS V-288-0 Successfully mapped bucket dir4 to user2.
```

14.6.5 SEE ALSO

objectaccess(1)

14.7 object

14.7.1 SYNOPSIS

`object` retention get [object_path] [version_id]

`object` retention set [object_path] [retention_time] [version_id]

14.7.2 DESCRIPTION

The ObjectAccess `object` commands are used to get and set retention time on particular object.

14.7.3 OPTIONS

`object retention get` ***object_path*** Gets the retention time of a specified object. If version id is passed, retention on object with given version id is returned. If version id is not passed, retention on latest versioned object is returned.

`object retention set` ***object_path retention_time*** Sets the provided retention time on given object. If version id is passed, retention is set on object with given version id. If version id is not passed, retention is set on latest versioned object.

14.7.4 EXAMPLES

Get retention time of a specified object.

```
ObjectAccess> object retention get bkt4/obj1 3
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj1, version 3 is 11-24-2021 12:26:27 GMT

ObjectAccess> object retention get bkt4/obj2/ 1
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj2/, version 1 is 11-19-2021 10:31:01 GMT

ObjectAccess> object retention get bkt4/obj2/
Access Appliance ObjectAccess SUCCESS V-493-10-5211 Retention value on object bkt4/
↪obj2/, version c is 11-24-2021 12:36:04 GMT
```

Set retention time on object

```
ObjectAccess> object retention set bkt4/obj3 11-25-2021:04:04:12
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 11-25-2021
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 1M
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 1y
```

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```
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj3 0
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj3

ObjectAccess> object retention set bkt4/obj1 1d 3
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 3 of object bkt4/obj1

ObjectAccess> object retention set bkt4/obj2/ 1H 1
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version 1 of object bkt4/obj2/

ObjectAccess> object retention set bkt4/obj2/ 3600s
Access Appliance Retention SUCCESS V-493-10-2830 Successfully set retention on␣
↪version c of object bkt4/obj2/
```

14.7.5 SEE ALSO

objectaccess(1)

14.8 server

14.8.1 SYNOPSIS

`server` [enable|start|stop|status|disable]

14.8.2 DESCRIPTION

The ObjectAccess `server` commands are used to start, stop, or check the status of the object access server.

14.8.3 OPTIONS

`server` [enable|start|stop|status|disable] Start, stop, or check the status of the object access service. The server must be enabled before starting. Disabling the server deletes the object access configuration and user information database. All S3 buckets must be deleted before disabling the object access server.

14.8.4 EXAMPLES

Enable the object access service.

```
earth.ObjectAccess> server enable
100% [********************] Enabling ObjectAccess server.
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess server enabled.
```

Start the object access service.

```
earth.ObjectAccess> server start
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess started successfully.
```

Display the status of the object access service.

```
earth.ObjectAccess> server status
ObjectAccess Status on earth_01 : ONLINE
ObjectAccess Status on earth_02 : ONLINE
```

Stop the object access service.

```
earth.ObjectAccess> server stop
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess stopped successfully.
```

Disable the object access service.

```
earth.ObjectAccess> server disable
This operation will delete ObjectAccess authentication information, do you
want to continue(y/n): y
100% [********************] Disabling ObjectAccess server.
ACCESS ObjectAccess SUCCESS V-288-0 ObjectAccess server disabled.
```

14.8.5 SEE ALSO

objectaccess(1)

14.9 set

14.9.1 SYNOPSIS

`set` [ssl_enabled|pools|fs_size|fs_type|fs_worm|data_endpoints|admin_endpoints|retention]

14.9.2 DESCRIPTION

The ObjectAccess commands are used to set object access configurable and default file system options.

14.9.3 OPTIONS

`set` [ssl_enabled|pools|fs_size|fs_type|fs_worm|data_endpoints|admin_endpoints|retention] Set object access configurable and default file system options. The object access server creates a new file system for every new bucket. Use the set command to create a new file system of a different configuration. The `ssl_enabled` option enables HTTPS access. The `data_endpoints` and `admin_endpoints` options allow you to set endpoints of your choice. The default endpoints are s3.<clustername> and admin.<clustername>. You can set a maximum of four endpoints. The `pools` option lets you choose the pool on which the bucket has to be created. Use the `fs_size` option to set the default file system size for the buckets. Use the `fs_type` option to choose the type of the file system that is created as part of bucket creation. Use the `fs_worm` option to set the default file system WORM attribute for the buckets. Use the `retention min` and `retention max` option to set default values for minimum and maximum retention time for file systems for the bucket. The values are measured in seconds and vxdefault will unset the default values of retention.

14.9.4 EXAMPLES

Set `ssl_enabled` to `yes` to have secure communication between the client and the server.

```
earth.ObjectAccess> set ssl_enabled yes
ACCESS ObjectAccess INFO V-288-0 Set ssl-enabled successful.
ACCESS SSL INFO V-288-0 Note: Please restart the objectaccess server.
```

Set `ssl_enabled` to `no` if you do not want secure communication.

```
earth.ObjectAccess> set ssl_enabled no
ACCESS ObjectAccess INFO V-288-0 Set ssl-enabled successful.
ACCESS SSL INFO V-288-0 Note: Please restart the objectaccess server.
```

Set data endpoints using `set data_endpoints`. Setting the endpoints is not allowed when objectaccess server is online.

```
access.ObjectAccess> set data_endpoints s3.data1,s3.data2
ACCESS ObjectAccess SUCCESS V-493-10-0 Data endpoints set successfully. Please renew␣
↪the certificates.

access.ObjectAccess> set data_endpoints s3.data1,s3.data2,s3.data3,s3.data4,s3.data5
ACCESS ObjectAccess ERROR V-493-10-0 Maximum 4 endpoints can be set
```

Set the admin endpoints using `set admin_endpoints`. Setting the endpoints is not allowed when objectaccess server is online.

```
access.ObjectAccess> set admin_endpoints s3.admin1,s3.admin2,s3.admin3
ACCESS ObjectAccess SUCCESS V-493-10-0 Data endpoints set successfully. Please renew␣
↪the certificates

access.ObjectAccess> set admin_endpoints s3.admin1,s3.admin2,s3.admin3,s3.admin4,s3.
↪admin5
ACCESS ObjectAccess ERROR V-493-10-0 Maximum 4 endpoints can be set
```

Set the default pool(s), which are used to create the file system while creating the buckets. This default pool can be overridden by setting up group-specific options by using the `set` command.

```
earth.ObjectAccess> set pools pool1
ACCESS ObjectAccess INFO V-288-0 Set pools successful. Please make sure the
storage is provisioned as per the requirements of the layout.
```

Set the default `fs_type` to a mirrored layout with 2 mirrors.

```
earth.ObjectAccess> set fs_type mirrored 2 protection=pool blksize=1024 pdir_
↪enable=no encrypt=off
ACCESS ObjectAccess INFO V-288-0 Set fs_type mirrored successful.
```

Set the default `fs_type` to an erasure-coded layout.

```
    earth.ObjectAccess> set fs_type ecoded 2 1 stripeunit=128 blksize=1024 pdir_
↪enable=yes stripe_tag=disk metadata_vol=ec vol_mediatype=hdd dco_mediatype=hdd
    ACCESS ObjectAccess INFO V-288-0 Set fs_type successful.
If the vol_mediatype or the dco_mediatype option is set to vxdefault, the option is␣
↪ignored.
```

Set the default file system size that should be used while creating the file system for a given bucket. This default `fs_size` can be overridden by setting up group-specific options by using the `set` command.

```
earth.ObjectAccess> set fs_size 10G
ACCESS ObjectAccess INFO V-288-0 Set operation successful.
```

Set the default value of the WORM-attribute option to yes to create WORM-enabled file system for a given bucket.

```
earth.ObjectAccess> set fs_worm yes
ACCESS ObjectAccess INFO V-493-10-0 Set fs_worm operation successful.
```

Set the default file system minimum and maximum retention value that should be used while creating the file system for a given bucket. This default `retention max` and `retention min` can be overridden by using the `set` command.

```
earth.ObjectAccess> set retention min 3600s
ACCESS ObjectAccess INFO V-493-10-3634 Set retention min successful.

earth.ObjectAccess> set retention max 5400s
ACCESS ObjectAccess INFO V-493-10-3634 Set retention max successful.
```

14.9.5 SEE ALSO

objectaccess(1), unset(1)

14.10 show

14.10.1 SYNOPSIS

`show`

14.10.2 DESCRIPTION

The ObjectAccess `show` command is used to list all the object access service configurable options.

14.10.3 OPTIONS

`show` List all the object access configurable options.

14.10.4 EXAMPLES

Display the configuration of the object access service.

```
earth.ObjectAccess> show
Name            Value
=============   ========================
Server Status   Disabled
Admin_URL       http://admin.earth:8144
S3_URL          http://s3.earth:8143
admin_port      8144
s3_port         8143
ssl             no
fs_size         20G
pools           pool1,pool2
fs_blksize      8192
fs_pdirenable   no
fs_encrypt      off
fs_type         mirrored
fs_nmirrors     2
fs_protection   disk
fs_worm         yes
retention_min   3600s
retention_max   5400s
```

14.10.5 SEE ALSO

objectaccess(1), set(1), unset(1)

14.11 unset

14.11.1 SYNOPSIS

`unset` [pools|data_endpoints|admin_endpoints]

14.11.2 DESCRIPTION

The ObjectAccess `unset` command is used to unset the configuration of the object access service.

14.11.3 OPTIONS

`unset` pools pool1[,pool2,...]|data_endpoints|admin_endpoints Remove pools from the default pool list. If any bucket is present in that pool, then the unset command fails for that pool. Removing all the pools is not allowed as the object access service requires at least one default pool. Remove the data or admin endpoints that have been set by the user. If the endpoints are removed, the default endpoint (s3.clustername and admin.clustername) will be used.

14.11.4 EXAMPLES

Unset the pool mapping.

```
earth.ObjectAccess> unset pools pool-group1
ACCESS ObjectAccess INFO V-288-0 Unset pools successful.
```

unset the data endpoints

```
access.ObjectAccess> unset data_endpoints
ACCESS ObjectAccess SUCCESS V-493-10-0 Endpoint unset successful.
```

unset the admin endpoints

```
access.ObjectAccess> unset admin_endpoints
ACCESS ObjectAccess SUCCESS V-493-10-0 Endpoint unset successful.
```

14.11.5 SEE ALSO

objectaccess(1), set(1)

15

OpenDedup Commands

16

Report Commands

16.1 report

16.1.1 SYNOPSIS

`showevents` [*number_of_events*]

`syslog add` *syslog-server-ipaddr*

`syslog delete`

`syslog set` interval *value*

`syslog get` interval

`syslog show`

16.1.2 DESCRIPTION

The `report` commands is used to configure and display the syslog server. The commands also supports showing the recent events. These events are centrally located.

16.1.3 OPTIONS

`showevents` **[*number_of_events*]** Display the latest events.

`syslog add` ***syslog-server-ipaddr*** Add an external syslog server.

`syslog delete` Delete the configured syslog server.

`syslog set interval` ***value*** Set the interval for forwarding the syslog.

`syslog get` **interval** Get the interval details of the configured syslog server.

`syslog show` Display the current list of external syslog servers.

16.1.4 EXAMPLES

Display the last 10 events

```
Report> showevents 10
Mar 28 23:11:28 [node1,alert,test] Filesystem accounts1 disabled on node2.
......
OK Completed
```

Add a new syslog server

```
Report> syslog add syslog1.veritas.com
OK Completed
```

Delete the configured syslog server.

```
Report> syslog delete
OK Completed
```

Show the configured syslog servers.

```
Report> syslog show
Configured syslog servers: syslog1.veritas.com
OK Completed
```

Set the syslog interval details.

```
Report> syslog set interval 45
OK Completed
```

Get the interval details of the configured syslog server.

```
Report> syslog get interval
Interval : 45
OK Completed
```

16.1.5 SEE ALSO

syslog(1), showevents(1)

16.2 showevents

16.2.1 SYNOPSIS

`showevents` [*number_of_events*]

16.2.2 DESCRIPTION

The report `showevents` command displays the latest events.

16.2.3 OPTIONS

number_of_events Number of events to display. Entering 0 shows all of the events.

`showevents` [*number_of_events*] Display latest events.

16.2.4 EXAMPLES

Display the last 10 events:

```
Report> showevents 10
November 12 17:30:24 [test_01,info,root] Disk list detail completed
November 12 17:30:35 [test_01,info,root] Disk list types completed
November 12 17:30:41 [test_01,info,root] Checked status of IO Fencing on the␣
↪coordinator disks
November 12 17:30:54 [test_01,info,root] Disk list stats completed
November 12 17:32:20 [test_01,info,root] CIFS> share show
November 12 17:35:47 [test_01,alert,master] Could not connect
November 12 17:36:56 [test_01,info,test] Notification daemon started.
November 12 17:38:03 [test_01,alert,master] ERROR
November 12 17:38:17 [test_01,alert,master] Could not connect
November 12 17:38:54 [test_01,info,master] ping completed
......
```

16.2.5 SEE ALSO

syslog(1)

16.3 syslog

16.3.1 SYNOPSIS

`syslog add` *syslog-server-ipaddr*

`syslog delete`

`syslog set` interval *value*

`syslog get` interval

`syslog show`

16.3.2 DESCRIPTION

The report `syslog` command configures the external syslog servers and sets the interval for forwarding the syslog.

16.3.3 OPTIONS

syslog-server-ipaddr Hostname or IP address of the external syslog server.

value Value of the variable to set.

`syslog add` ***syslog-server-ipaddr*** Add an external syslog server.

`syslog delete` Delete the configured syslog server.

`syslog set interval` ***value*** Set the interval for forwarding the syslog.

`syslog get` **interval** Get the interval details of the configured syslog server.

`syslog show` Show the current list of external syslog servers.

16.3.4 EXAMPLES

Add a new syslog server.

```
Report> syslog add syslog1.veritas.com
```

Delete the configured syslog server.

```
Report> syslog delete
```

Show configured syslog servers.

```
Report> syslog show
Configured syslog servers: syslog1.veritas.com
```

Set syslog forwarding interval:

```
Report> syslog set interval 45
OK Completed
```

Get interval details of configured syslog server:

```
Report> syslog get interval
Interval : 45
OK Completed
```

16.3.5 SEE ALSO

showevents(1)

17

Replication Commands

17.1 replication

17.1.1 SYNOPSIS

`episodic config bind` *ip_addr* [*device*] [*netmask*]

`episodic config unbind` *ip_addr*

`episodic config show` [*ip* | *remote_clus*]

`episodic config import_keys` [*URL*]

`episodic config export_keys` [*URL*]

`episodic config del_keys` *console_ip*

`episodic config auth` *console_ip link_name*

`episodic config deauth` *link_name*

`episodic config check` *link_name*

`episodic config certificate generate`

`episodic config certificate import`

`episodic config certificate delete`

`episodic config certificate status`

`episodic service start` [*node_name*]

`episodic service stop`

`episodic service status`

`episodic repunit create` *repunit_name repunit_entry*[,*repunit_entry,...*]

`episodic repunit add_entry` *repunit_name repunit_entry*

`episodic repunit add_pattern_entry` *repunit_name repunit_pattern_entry*

`episodic repunit remove_entry` *repunit_name repunit_entry*

`episodic repunit remove_pattern_entry` *repunit_name repunit_pattern_entry*

`episodic repunit modify_entry` *repunit_name old_repunit_entry new_repunit_entry*

`episodic repunit modify_pattern_entry` *repunit_name old_repunit_pattern_entry new_repunit_pattern_entry*

`episodic repunit destroy` *repunit_name* [*option*]

`episodic repunit show` [*repunit_name*] | [*verbose*]

`episodic exclunit create` *exclunit_name exclunit_entry*[,*exclunit_entry*,...]*

`episodic exclunit add_entry` *exclunit_name exclunit_entry*

`episodic exclunit add_pattern_entry` *exclunit_name exclunit_pattern_entry*

`episodic exclunit remove_entry` *exclunit_name exclunit_entry*

`episodic exclunit remove_pattern_entry` *exclunit_name exclunit_pattern_entry*

`episodic exclunit modify_entry` *exclunit_name old_exclunit_entry new_exclunit_entry*

`episodic exclunit modify_pattern_entry` *exclunit_name old_exclunit_pattern_entry new_exclunit_pattern_entry*

`episodic exclunit destroy` *exclunit_name*

`episodic exclunit show` [*exclunit_name*]

`episodic schedule create` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

`episodic schedule modify` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

`episodic schedule show` [*schedule_name*]

`episodic schedule delete` *schedule_name*

`episodic job create` *job_name src_repunit tgt_repunit link_name schedule_name* [*evpsn*] [*metadata_only*]

`episodic job show` [*job_name*]

`episodic job enable` *job_name*

`episodic job sync` *job_name*

`episodic job status` *job_name*

`episodic job pause` *job_name*

`episodic job resume` *job_name*

`episodic job disable` *job_name*

`episodic job destory` *job_name* [*option*]

`episodic job abort` *job_name*

`episodic job failover` *force job_name* [*link_name*]

`episodic job failback` *force job_name* [*link_name*]

`episodic job exclude` *job_name exclunit_name*

`episodic job modify` *debug job_name on\off*

`episodic job modify` *tunables job_name netconn rwcount*

`continuous config bind` *ip_addr* [*device*] [*netmask*]

`continuous config show` [*ip* | *remote_clus*]

`continuous config unbind` *ip_addr*

`continuous config export_keys` [*URL*]

`continuous config import_keys` [*URL*]

`continuous config del_keys` *conIP*

`continuous config auth` *conIP link_name*

`continuous config deauth` *link_name*

`continuous config set_max_srl_size` *rvg_name size*

`continuous enable` *fs_name pool_name link_name*

`continuous disable` *fs_name link_name*

`continuous start` *fs_name*

`continuous stop` *fs_name*

`continuous pause` *fs_name*

`continuous resume` *fs_name*

`continuous status` *fs_name*

`continuous failover` *fs_name*

`continuous failback` *fs_name*

`continuous show`

`continuous service start`

`continuous service stop`

`continuous service status`

17.1.2 DESCRIPTION

These `replication` commands are used to manage the replication service on a cluster.

17.1.3 OPTIONS

`episodic config bind` *ip_addr* [*device*] [*netmask*]

Add a virtual IP address to be used as the replication service virtual IP address and *device* as a network interface for the virtual IP address.

`episodic config unbind` *ip_addr*

Delete the virtual IP address from the replication service.

`episodic config export_keys` *URL*

Copy the replication public key from the local cluster to a specified URL.

`episodic config import_keys` *URL*

Copy the replication public key of the remote cluster from a specified URL to a local cluster.

`episodic config del_keys` *console_ip*

Delete the replication public key of a remote cluster identified by *console_ip* from the local cluster.

`episodic config auth` *console_ip link_name*

Authenticate two clusters mutually to participate in the replication service. The * console_ip * is the console IP address of the remote cluster, and *link_name* is the association name between the local cluster and the remote cluster.

`episodic config deauth` *link_name*

Unauthenticate two clusters identified by the association *link_name* from participating in the replication service.

`episodic config check` *link_name*

Check the status of the association identified by the name *link_name* between the source and the target clusters.

`episodic config certificate generate`

Generate a self-signed certificate.

`episodic config certificate import`

Import trusted certificates from an external entity.

`episodic config certificate delete`

Delete configured certificates.

`episodic config certificate status`

Display certificate information.

`episodic service` start [node_name]

Start the episodic replication service. You can use the optional parameter "node_name" to start the replication service on a specific node of the cluster. Otherwise the service start command will automatically figure out the best suitable node in the cluster and will start the replication service there.

`episodic service` stop

Stop the episodic replication service.

`episodic service` status

Check the status of the episodic replication service.

`episodic repunit create` *repunit_name repunit_entry*[,*repunit_entry,...*]

Create a replication unit with a given set of entries.

`episodic repunit add_entry` *repunit_name repunit_entry*

Add a new entry to an existing replication unit.

`episodic repunit add_pattern_entry` *repunit_name repunit_pattern_entry*

Add a new pattern entry to an existing replication unit.

`episodic repunit remove_entry` *repunit_name repunit_entry*

Remove an entry from an existing replication unit.

`episodic repunit remove_pattern_entry` *repunit_name repunit_pattern_entry*

Remove a pattern entry from an existing replication unit.

`episodic repunit modify_entry` *repunit_name old_repunit_entry new_repunit_entry*

Modify an existing entry in a replication unit.

`episodic repunit modify_pattern_entry` *repunit_name old_repunit_pattern_entry new_repunit_pattern_entry*

Modify an existing pattern entry in a replication unit.

`episodic repunit destroy` fIrepunit_name [*option*]

Destroy a replication unit.

`episodic repunit show` [*repunit_name*] | [*verbose*]

Display replication unit details.

`episodic exclunit create` *exclunit_name exclunit_entry*[,*exclunit_entry*,...]*

Create an excluding unit with a given set of entries.

`episodic exclunit add_entry` *exclunit_name exclunit_entry*

Add a new entry to an existing excluding unit.

`episodic exclunit add_pattern_entry` *exclunit_name exclunit_pattern_entry*

Add a new pattern entry to an existing excluding unit.

`episodic exclunit remove_entry` *exclunit_name exclunit_entry*

Remove an entry from an existing excluding unit.

`episodic exclunit remove_pattern_entry` *exclunit_name exclunit_pattern_entry*

Remove a pattern entry from an existing excluding unit.

`episodic exclunit modify_entry` *exclunit_name old_exclunit_entry new_exclunit_entry*

Modify an existing entry in an excluding unit.

`episodic exclunit modify_pattern_entry` *exclunit_name old_exclunit_pattern_entry new_exclunit_pattern_entry*

Modify an existing pattern entry in an excluding unit.

`episodic exclunit destroy` fIexclunit_name

Destroy an excluding unit.

`episodic exclunit show` [*exclunit_name*]

Display excluding unit details.

`episodic schedule create` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

Create a schedule.

`episodic schedule modify` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

Modify an existing schedule.

`episodic schedule show` *schedule_name*

Show a schedule.

`episodic schedule delete` *schedule_name*

Delete a schedule.

`episodic job create` *job_name src_repunit tgt_repunit link_name schedule_name* [*evpsn*] [*metadata_only*]

Create a replication job definition.

evpsn The evpsn option [evpsn=yes|evpsn=no] enables or disables Enterprise Vault partition secure notifications.

metadata_only The metadata_only option [metadata_only=yes|metadata_only=no] enables or disables metadata only replication. This feature is not supported with consistency groups and tunables.

`episodic job show` [*job_name*]

Display the definition of a job.

`episodic job enable` *job_name*

Activate a episodic job and start replicating the data.

`episodic job status` [*job_name*]

Show status of job(s).

`episodic job pause` *job_name*

Pause an already running job.

`episodic episodic job resume` *job_name*

Resume an already paused job.

`episodic episodic job disable` *job_name*

Disable an Enabled/Paused/Failed job.

`episodic job destroy` *job_name* [*option*]

Destroy a job. The administrator can use the force option to clean up local jobs. In case of forceful job removal, configuration of the other clusters, which are part of the job, will not be modified and repunit(s) will be disassociated from the job. Job destroy force should be used in case of unrecoverable configuration or replication direction mismatch.

`episodic job abort` *job_name*

Abort an already running job.

`episodic job sync` *job_name*

Start a sync job. This command is similar to the job enable command but will stop the replication job after one iteration (full or incremental) is complete. This command can also be used if the primary file system is completely destroyed and needs to be recovered from the secondary site after a disaster.

`episodic job failover` *force job_name* [*link_name*]

Failover the job from the source cluster to one of the available target clusters of link *link_name*. Job failover can be executed from the target with empty *link_name* when the source cluster is not available. If the failover command executed from the target (when the source is not available), configuration related to the old source will be deleted. The administrator can use the job failover command from this old source with link_name of the new source to configure left-over source as the target of the current new source.

force The force option [force=yes|force=no] gives the option of interactive failover.

`episodic job failback` *force job_name* [*link_name*]

Failback the job from the source (previous target) cluster to the target (previous source) cluster. link_name is the link to the target cluster.

force The force option [force=yes|force=no] gives the option of interactive failback.

`episodic job exclude` *job_name exclunit_name*

Add an excluding unit to a job.

`episodic job modify` *debug job_name on\off*

Enable or disable debugging for the given job.

`episodic job modify` *tunables job_name netconn rwcount*

Set the tunables (sockets and threads) for the given job.

Display the bandwidth limit value of the replication links.

`continuous config bind` *ip_addr* [*device*] [*netmask*]:

Add a virtual IP address which is used as the continuous replication service virtual IP address and a *device* which is used as a network interface for the virtual IP address. The *ip_addr* is highly-available in the cluster. By default, the replication virtual IP address is configured on the pubeth0 interface using the pubeth0 interface netmask. You can change the default interface and the netmask using the [*device*] and the [*netmask*] parameters.

`continuous config show` [*ip* | *remote_clus*]:

Display the replication virtual IP (using the `ip` option) of the local cluster. The `remote_clus` option of the `continuous config show` command displays information related to the remote cluster replication VIP as well as information related to key import and authentication status.

`continuous config unbind` *ip_addr*:

Delete the virtual IP address from the continuous replication service.

`continuous config export_keys` [*URL*]:

Copy the continuous replication public key from the local cluster.

`continuous config import_keys` [*URL*]:

Copy the continuous replication public key from the remote cluster to the local cluster.

`continuous config del_keys` *conIP*:

Delete the continuous replication public key of a remote cluster identified by *conIP* from the local cluster.

`continuous config auth` *conIP link_name*:

Authenticate two clusters mutually to participate in the continuous replication service. The *conIP* is the console IP address of the remote cluster, and *link_name* is the association name between the local cluster and the remote cluster.

`continuous config deauth` *link_name*:

Un-authenticate two clusters identified by the association *link_name* from participating in the continuous replication service.

`continuous config set_max_srl_size` *rvg_name size*:

Sets the maximum size limit for SRL for a particular RVG. Addition of new FS to the RVG or fsgrowto/growby will fail if SRL max size is reached.

`continuous enable` *fs_name pool_name link_name*:

Configure the continuous replication between the source and the target cluster. It requires *fs_name*, which should be present on the source cluster, pool_name, which should be present on the target cluster, and link_name, which is created during authentication of the source and the target cluster.

`continuous disable` *fs_name link_name*:

Unconfigure continuous replication from the source and the target cluster. It requires *fs_name* and *link_name* as parameters.

`continuous start` *fs_name*:

Start data replication between the source and the target cluster.

`continuous stop` *fs_name*:

Stop data replication between the source and the target cluster.

`continuous pause` *fs_name*:

Pause data replication between the source and the target cluster.

`continuous resume` *fs_name*:

Resume data replication between the source and the target cluster, which was paused.

`continuous status` *fs_name*:

Display the status of synchronous replication between the source and the target cluster.

`continuous failover` *fs_name*:

Failover the synchronous replication from the source cluster to target cluster. The continuous failover can be executed from the target cluster when the source cluster is not available. If the failover command executed from the target (when the source is not available), it will run the application on the target cluster.

`continuous failback` *fs_name*:

Failback the syncronous replication from the source (previous target) cluster to the target (previous source) cluster.

`continuous show`

Show the list of file system which are configured under synchronous replication.

`continuous service` start

Start the continuous replication service.

`continuous service` stop

Stop the continuous replication service.

`continuous service` status

Check the status of the continuous replication service.

17.1.4 SEE ALSO

episodic(1), continuous(1)

17.2 continuous

17.2.1 SYNOPSIS

`continuous config bind` *ip_addr* [*device*] [*netmask*]

`continuous config show` [*ip* | *remote_clus*]

`continuous config unbind` *ip_addr*

`continuous config export_keys` [*URL*]

`continuous config import_keys` [*URL*]

`continuous config del_keys` *conIP*

`continuous config auth` *conIP link_name*

`continuous config deauth` *link_name*

`continuous config set_max_srl_size` *rvg_name size*

`continuous service` start [*node_name*]

`continuous service` stop

`continuous service` status

`continuous enable` *fs_name pool_name link_name* [*delayed*] [*rvg_name*] [*create_target_fs*] [*srl_size*]

`continuous disable` *fs_name link_name* [*destroy_target_fs*]

`continuous start` *fs_name*

`continuous stop` *fs_name*

`continuous pause` *fs_name*

`continuous resume` *fs_name*

`continuous status` *fs_name*

`continuous failover` *fs_name*

`continuous failback` *fs_name*

`continuous show`

17.2.2 DESCRIPTION

The replication `continuous` command provides synchronous replication between the source and the target cluster, which is based on volume-level replication.

Continuous replication replicates the application writes on the file system at the source location to one remote location across any distance. It provides a consistent copy of application data at the remote location. If a disaster occurs at the source location, you can use the copy of the application data at the remote location and restart the application at the remote location. Continuous replication provides zero RPO.

17.2.3 OPTIONS

continuous config bind ***ip_addr*** **[*device*] [*netmask*]** Add a virtual IP address which is used as the continuous replication service virtual IP address and a *device* which is used as a network interface for the virtual IP address. The *ip_addr* is highly-available in the cluster. By default, the replication virtual IP address is configured on the pubeth0 interface using the pubeth0 interface netmask. You can change the default interface and the netmask using the [*device*] and the [*netmask*] parameters.

continuous config show [*ip* | *remote_clus*] Display the replication virtual IP (using the `ip` option) of the local cluster. The `remote_clus` option of the `continuous config show` command displays information related to the remote cluster replication VIP as well as information related to key import and authentication status.

continuous config unbind ***ip_addr*** Delete the virtual IP address from the continuous replication service.

continuous config export_keys [*URL*] Copy the continuous replication public key from the local cluster.

continuous config import_keys [*URL*] Copy the continuous replication public key from the remote cluster to the local cluster.

continuous config del_keys ***conIP*** Delete the continuous replication public key of a remote cluster identified by *conIP* from the local cluster.

continuous config auth ***conIP link_name*** Authenticate two clusters mutually to participate in the continuous replication service. The *conIP* is the console IP address of the remote cluster, and *link_name* is the association name between the local cluster and the remote cluster.

continuous config deauth ***link_name*** Un-authenticate two clusters identified by the association *link_name* from participating in the continuous replication service.

continuous config set_max_srl_size ***rvg_name size*** Sets the maximum size limit for SRL for a particular RVG. Addition of new FS to the RVG or fsgrowto/growby will fail if SRL max size is reached.

continuous service start [node_name] Start the continuous replication service. You can use the optional parameter "node_name" to start the replication service on a specific node of the cluster. Otherwise the service start command automatically figures out the best suitable node in the cluster and starts the replication service there.

continuous service stop Stop the continuous replication service.

continuous service status Check the status of the continuous replication service.

continuous enable ***fs_name pool_name link_name*** **[*delayed*] [*rvg_name*] [*create_target_fs*] [*srl_size*]** Configure continuous replication between the source and the target cluster. The following parameters are required: fs_name: should be present on the source cluster, pool_name: should be present on the source as well as target cluster, link_name: created during authentication of the source and the target cluster, [delayed=yes|delayed=no] : specifies if the continuous replication should happen in delayed mode, This is an optional parameter and the default value is 'no'. [rvg_name]: should be provided if the user wants to have a customised RVG name or wants to create an RVG with multiple file systems. It requires the pool on the target cluster to have sufficient storage to create a file system, Storage Replicator Log (SRL) volume and DCM logs. The pool name must be same at the source and the target cluster. If delayed mode is enabled, there can be non-zero RPO. For asynchronous continuous replication, the SRL volume size is 20% of the file system size. For synchronous continuous replication, the SRL volume size is 5% of the file system size. By default, the number of DCM logs is 2 but for any mirrored type of file system, it is equal to the number of mirrors. For example, if the file system size on the source cluster is 8GB then at least 3GB storage should be present in the pool at the source cluster to create SRL volume and DCM logs in case of

asynchronous replication. For the target cluster, 11GB storage should be present in pool to create file system, SRL volume and DCM logs. [create_target_fs=yes|create_target_fs=no] : specifices if new filesystem should be created on the target cluster or target cluster should be validated with the filesystem passed. This is an optional parameter and the default value is 'yes'. [srl_size] : specifies the size of SRL volume. This is an optional parameter. If not specified, size is calculated based on asynchronous/synchronous continuous replication.

continuous disable ***fs_name link_name*** **[*destroy_target_fs*]** Unconfigure continuous replication from the source and the target cluster. It requires *fs_name* and *link_name* as parameters. [destroy_target_fs=yes|destroy_target_fs=no]: Destroy the file system on target site after the disable operation. This is an optional parameter with default value as yes.

continuous start ***fs_name*** Start data replication between the source and the target cluster.

continuous stop ***fs_name*** Stop data replication between the source and the target cluster.

continuous pause ***fs_name*** Pause data replication between the source and the target cluster.

continuous resume ***fs_name*** Resume data replication between the source and the target cluster, which was paused.

continuous status ***fs_name*** Display the status of continuous replication between the source and the target cluster.

continuous failover ***fs_name*** Failover the continuous replication from the source cluster to target cluster. There are 2 scenarios in failover case, planned and unplanned failover. In the case of an unplanned failover, this command can be executed from the target cluster when the source cluster is not available. If the failover command executed from the target (when the source is not available), it will run the application on the target cluster and the target cluster will become the new source cluster. In the case of a planned failover, this command can be executed from the source cluster when both the source cluster and the target cluster are reachable. This command switches the roles of the source and the target cluster in continuous replication.

continuous failback ***fs_name*** Failback the continuous replication. There are 2 scenarios in failback case, planned and unplanned failback. In the case of an unplanned failback, this command can be executed from the original source cluster which was become unavailable due to some reasons. This command will make the original source cluster as new target cluster. In the case of a planned failback, this command can be executed from the target cluster when both the source and target cluster are reachable. It switches the roles of the source and the target cluster in continuous replication.

continuous show Show the list of RVGs along with the file systems associated with it.

17.2.4 EXAMPLES

Add a VIP address for the replication service.

```
Replication> continuous config bind 192.168.10.56
Please wait...
ACCESS replication SUCCESS V-288-0 192.168.10.56 configured as Virtual IP.
ACCESS replication SUCCESS V-288-0 IP bind completed
```

Configure a VIP address for the replication service on interface pubeth1 and netmask 255.255.255.0.

```
Replication> continuous config bind 192.168.10.56 pubeth1 255.255.255.0
Please wait...
ACCESS replication SUCCESS V-288-0 192.168.10.56 configured as Virtual IP.
ACCESS replication SUCCESS V-288-0 IP bind completed
```

Show the replication VIP address.

```
Replication> continuous config show ip
Local cluster details:
======================
Continuous Replication VIP            : 192.168.10.56
Online On Node                  : isaA_01
```

Delete the replication VIP from the replication service.

```
Replication> continuous config unbind 192.168.10.57
Please wait...
ACCESS replication SUCCESS V-288-0 IP unbind completed.
```

Export the replication key of the local cluster to the remote cluster.

```
Replication> continuous config export_keys

ACCESS replication SUCCESS V-288-1559 Displaying replication key. Please use this key␣
↪with config import_keys command.


ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAtI4Sy9CN7GM0ppfL4NH+bit0/RBosmYadmLelD56li1//
↪CLvYJ28ouC5uuYAx/XnCwCFBBGL/uL3+Sqd5+D8+YaRE0cdJvXJEQ2rwU2Ffm+l7ZX1/
↪uAbhnrRCS8HvuYWm25FgwpYN+6ssDbTDIJKse4M3iRCSKA4bAS9fh/
↪8guCW9yUv1DU1jHIifTATHTEZFk8mesNpq8nOoSxP88vPPAvNde7CBCvWAUERxZQe7CSW5IODT0p6ft0sFR0hBsPs8jqZ61hRze
↪XJyuXx3kqiH7cIYj9x/Rmd2lU9vw== root@isaA_01::isaA_192.168.10.21


ACCESS replication SUCCESS V-288-0 Config export keys command completed successfully.
```

Import the key of a remote cluster.

```
Replication> continuous config import_keys

Enter replication key of remote cluster::ssh-rsa␣
↪AAAAB3NzaC1yc2EAAAABIwAAAQEArkGIdvLGKtxblMVSZHaxxe+vkLtH4tsdQjFrfINY064kQ7lb+MIUhH11Uq/
↪uT4xF1wFXGr2s9yN3pphZkmiABX37VzGm3sXmDllouSHXQ+sqJRiOOBnp6TU6COzv1S8UZxqEWGCYWF1RmpDb2r/
↪6AhL5Mw0DrxfvPRLiCsWdki3iieFyyHaRoXZNnolH5jrn/PZwR9rS1m9QfQaGh3/
↪o8sWE1rphQxLX0D7FyuE0tdfWv4CBpIxFD7gckCx0cSiTG5Ar4ZlpXTSTg81J/
↪6cx46Nwswo8dkknci+YdbhTKjFYdMXw8IRo8aJSwa82B0XmextLbJbqIZ1iVbYpwJDZjw== root@isaB_
↪02::isaB_192.168.10.22

Enter console IP address of remote cluster::192.168.10.22
ACCESS replication SUCCESS V-288-0 Config import keys command completed successfully.
```

Delete the key of a remote cluster.

```
Replication> continuous config del_keys 192.168.10.21
ACCESS replication SUCCESS V-288-0 Config delete keys command completed successfully.
```

Show the list of cluster(s) whose key is imported by the local cluster.

```
Replication> continuous config show

Link name        Remote Console IP   Remote Replication VIP   Time of Key Import      ␣
↪      Time of Authorization
==============   =================   ======================  ␣
↪============================  ======================
```

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```
--               192.168.10.22       --                        Thu May 25 13:31:55 EDT␣
↪2017
```

Authorize a remote cluster having console IP 192.168.10.22 and link name as rep1.

```
Replication> continuous config auth 192.168.10.22 rep1
Please wait...
ACCESS replication SUCCESS V-288-0 Config auth command completed successfully.
```

Unauthorise a remote cluster having link name as rep1.

```
Replication> continuous config deauth rep1
Please wait...
ACCESS replication SUCCESS V-288-0 Config deauth command completed successfully.
```

Show the list of authorized clusters.

```
Replication> continuous config show

Link name        Remote Console IP   Remote Replication VIP   Time of Key Import      ␣
↪      Time of Authorization
==============   =================   ======================  ␣
↪============================  ======================
rep1             192.168.10.22       192.168.10.57            Thu May 25 13:31:55 EDT␣
↪2017  Thu May 25 13:34:50 EDT 2017
```

Start the replication service.

```
Replication> continuous service start
Starting replication service on isaA_01. Please wait...
ACCESS replication SUCCESS V-288-0 Continuous Replication service started
```

Stop the replication service.

```
Replication> continuous service stop
ACCESS replication SUCCESS V-288-0 Replication service stopped
```

Check the status of the replication service.

```
Replication> continuous service status
Status            : RUNNING
Online On Node    : isaB_01 isaB_02
```

Enable continuous replication.

```
Replication> continuous enable fs1 pool1 rep1
ACCESS Sync_rep SUCCESS V-288-0 Continuous replication configured successfully
```

Disable continuous replication.

```
Replication> continuous disable fs1 rep1 destroy_target_fs=yes
ACCESS Sync_rep SUCCESS V-288-0 Continuous replication unconfigured successfully
```

Start continuous data replication.

```
Replication> continuous start fs1
ACCESS Sync_rep SUCCESS V-288-0 Continuous data replication started successfully
```

Stop continuous data replication.

```
Replication> continuous stop fs1
ACCESS Sync_rep SUCCESS V-288-0 Continuous data replication stopped successfully
```

Pause continuous data replication.

```
Replication> continuous pause fs1
ACCESS Sync_rep SUCCESS V-288-0 Continuous data replication paused successfully
```

Resume continuous data replication.

```
Replication> continuous resume fs1
ACCESS Sync_rep SUCCESS V-288-0 Continuous data replication resumed successfully
```

Display the status of continuous data replication.

```
Replication> continuous status fs1
Name                    value
====================  ======================
Replicated Data Set    rvg_fs1
Replication Role       Primary
Replication link       rep1

Primary Site Info:

Host name              192.168.10.56
RVG state              enabled for I/O

Secondary Site Info:

Host name              192.168.10.57
Configured mode        synchronous-override
Data status            consistent, up-to-date
Replication status     replicating (connected)
Current mode           synchronous
Logging to             SRL
Timestamp Information  behind by  0h 0m 0s
```

Failover the continuous replication corresponding to the given fs_name.

```
For unplanned failover scenario,

Replication> continuous failover fs1
ACCESS Sync_rep SUCCESS V-288-0 Failover operation executed successfully!

For planned failover scenario,

Replication> continuous failover fs1
ACCESS Sync_rep SUCCESS V-288-0 Primary and secondary roles migrated successfully!
```

Failback the continuous replication corresponding to the given fs_name.

```
For unplanned failback scenario,

Replication> continuous failback fs1
ACCESS Sync_rep SUCCESS V-288-0 Failback operation executed successfully!

```

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```
For planned failback scenario,

Replication> continuous failback fs1
ACCESS Sync_rep SUCCESS V-288-0 Planned failback executed successfully!
```

Show the list of file system which are configured under continuous replication.

```
Replication> continuous show
Continuous Rep FS Names
=================
fs1
```

17.3 episodic

17.3.1 SYNOPSIS

`episodic config bind` *ip_addr* [*device*] [*netmask*]

`episodic config show` [*ip* | *remote_clus*]

`episodic config unbind` *ip_addr*

`episodic config export_keys` [*URL*]

`episodic config import_keys` [*URL*]

`episodic config del_keys` *conIP*

`episodic config auth` *conIP link_name*

`episodic config deauth` *link_name*

`episodic config check` *link_name*

`episodic config certificate generate`

`episodic config certificate import`

`episodic config certificate delete`

`episodic config certificate status`

`episodic exclunit create` *exclunit_name exclunit_entry* [, *exclunit_entry*,. . .]

`episodic exclunit add_entry` *exclunit_name exclunit_entry*

`episodic exclunit remove_entry` *exclunit_name exclunit_entry*

`episodic exclunit modify_entry` *exclunit_name old_exclunit_entry new_exclunit_entry*

`episodic exclunit destroy` *exclunit_name*

`episodic exclunit show` [*exclunit_name*]

`episodic job create` *job_name src_repunit tgt_repunit link_name schedule_name* [*evpsn*] [*metadata_only*]

`episodic job show` [*job_name*]

`episodic job enable` *job_name*

`episodic job sync` *job_name*

`episodic job status` [*job_name*]

`episodic job pause` *job_name*

`episodic job resume` *job_name*

`episodic job disable` *job_name*

`episodic job destroy` *job_name* [*option*]

`episodic job abort` *job_name*

`episodic job failover` *force=yes/no job_name* [*link_name*]

`episodic job failback` *force=yes/no job_name link_name*

`episodic job exclude` *job_name exclunit_name*

`episodic job modify` *debug job_name on\off*

`episodic job modify` *tunables job_name netconn rwcount*

`episodic repunit create` *repunit_name repunit_entry*[,*repunit_entry,...]*

`episodic repunit add_entry` *repunit_name repunit_entry*

`episodic repunit remove_entry` *repunit_name repunit_entry*

`episodic repunit modify_entry` *repunit_name old_repunit_entry new_repunit_entry*

`episodic repunit destroy` *repunit_name* [*option*]

`episodic repunit show` [*repunit_name*] | [*verbose*]

`episodic schedule create` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

`episodic schedule modify` *schedule_name minute* [*hour*] [*day_of_the_month*] [*month*] [*day_of_the_week*]

`episodic schedule show` [*schedule_name*]

`episodic schedule delete` *schedule_name*

`episodic service` start [*node_name*]

`episodic service` stop

`episodic service` status

17.3.2 DESCRIPTION

config

The replication `episodic config` command provides a set of cluster authentication related operations and methods to add and delete a virtual IP with the replication service.

Veritas Access replication authentication strategy is based on RSA key authentication, and both source and destination clusters have to export their replication public keys. Both the source and destination clusters must then import public keys from each other.

After both the source and destination clusters have successfully imported each other's keys, the `episodic config auth` command must be run on the source cluster to complete the authentication between the two clusters. The `episodic config auth` command will check two-way communication between the source and the destination clusters, and then it will authenticate these two clusters to participate in the replication service.

exclunit

The replication `episodic exclunit` command provides operations to create, destroy, show, and manage excluding unit definitions.

An excluding unit is a collection of files that you do not want to replicate. Hence, all files belonging to an excluding unit are not replicated from the source cluster to the destination cluster.

A single excluding unit can span across multiple directories and is common for all file systems. An excluding unit is defined as an ordered set of entries, where each entry is one of the following:

- Directory
- Single file

The entry is identified by the path of the directory, or the file. The entry should be the substring following the file system root. For example, /vx/fs1/dir1/file specifies dir1/file as the exclunit entry. Member entries are ordered inside an excluding unit.

The exclunit entry has higher priority over the repunit entry. If any existing file name matches the exclunit entry, the file/directory is not replicated to the target.

job

The replication `episodic job` command provides operations to create, destroy, display, and manage job definitions and job states.

A job binds together source and target replication units, the source and the target clusters, and a replication schedule. A configured job defines who participates in replication, what gets replicated, and when replication occurs between the source and the target clusters.

repunit

The replication `episodic repunit` command provides operations to create, destroy, show, and manage replication unit definitions. A replication unit is a collection of files that you want to include in a replication job. All files belonging to a replication unit are replicated together from the source cluster to the target cluster.

A single replication unit can span across multiple directories and even multiple file systems. A replication unit is defined as an ordered set of entries, where each entry is one of the following:

- File system
- Subdirectory
- Single file

The entry is identified by the file system name optionally followed by a slash ('/'), followed by the path of the directory, or the file inside the file system. Member entries are ordered inside a replication unit and such ordering information is used for the mapping between the source and the target replication units.

The user can specify a file/directory name to replicate files based on file name, which will select files dynamically. The user does not need to know the exact file name in advance.

The exclunit entry have higher priority over the repunit entry. If any path name matches the exclunit entry or the exclunit the file/directoryis not replicated to the target. Also, if any path matches both the repunit and the exclunit, the path is not replicated to the target. Based on dataset known, the user can specify either the repunit or the exclunit .

schedule

The replication `schedule` commands create, destroy, display, and manage the replication schedules.

Veritas Access supports periodic replication, where the data gets replicated from the source to the destination at regular intervals as defined by the schedule. The same schedule definition can be used for multiple replication jobs. The input to create a schedule is in the same format as that required by the standard UNIX cron daemon, where the values for minute, hour, day-of-the-month, month, and day-of-the-week, are almost the same as the crontab format. The parameters and values are defined below.

1. `Schedule name`: Specifies the name of the schedule.

2. `Minute`: This parameter contains either an asterisk '*', which implies run every minute, or a numeric value between the range of 0-59.

3. `Hour`: This parameter contains either an asterisk '*', which implies run every hour, or a numeric value between the range of 0-23.

4. `Day of month`: This parameter contains either an asterisk '*', which implies run every day of the month, or a numeric value between the range of 1-31.

5. `Month:` This parameter contains either an asterisk '*', which implies run every month, or a numeric value between the range of 1-12. In addition, this field accepts names of the month. Enter the first three letters of the month (not case-sensitive) as the input value.

6. `Day of Week:` This parameter contains either an asterisk '*', which implies run every day of the week, or a numeric value between the range of 0-6, with 0 interpreted as Sunday. In addition, this field accepts names of the week. Enter the first three letters of the month (only use lowercase letters) as the input value.

service

The replication `episodic service` commands start, stop, and display the status of the replication service. Before starting the Veritas Access Replication service, make sure that:

1. A file system is present on the cluster.
2. A virtual IP address is added to the replication service. Refer to the config part of this man page.

17.3.3 OPTIONS

episodic config bind ***ip_addr*** **[*device*] [*netmask*]** Add a virtual IP address to be used as the replication service virtual IP address and *device* as a network interface for the virtual IP address. The *ip_addr* is highly-available in the cluster. By default, the replication virtual IP address is configured on the pubeth0 interface using the pubeth0 interface netmask. You can change the default interface and the netmask using [*device*] and [*netmask*] parameters.

episodic config show [*ip* | *remote_clus*] Display the replication virtual IP (using the `ip` option) of the local cluster `.remote_clus` option of the `episodic config show` command displays information related to the remote cluster replication VIP as well as information related to key import and authentication status.

episodic config unbind ***ip_addr*** Delete the virtual IP address from the replication service.

episodic config export_keys [*URL*] Copy the replication public key from the local cluster to a specified URL.

episodic config import_keys [*URL*] Copy the replication public key of the remote cluster from a specified URL to the local cluster.

episodic config del_keys ***conIP*** Delete the replication public key of a remote cluster identified by *conIP* from the local cluster.

episodic config auth ***conIP link_name*** Authenticate two clusters mutually to participate in the replication service. The *conIP* is the console IP address of the remote cluster, and *link_name* is the association name between the local cluster and the remote cluster.

episodic config deauth ***link_name*** Un-authenticate two clusters identified by the association *link_name* from participating in the replication service.

episodic config check ***link_name*** Check the status of the association identified by the name *link_name* between the source and the destination clusters.

episodic config certificate generate Generate a self-signed certificate.

episodic config certificate import Import trusted certificates from an external entity.

episodic config certificate delete Delete configured certificates.

episodic config certificate status Display certificate information.

episodic exclunit create *exclunit_name exclunit_entry* **[,** *exclunit_entry*,**...]** Create an excluding unit with a given set of entries.

episodic exclunit add_entry *exclunit_name exclunit_entry* Add a new entry to an existing excluding unit.

episodic exclunit remove_entry *exclunit_name exclunit_entry* Remove an entry from an existing excluding unit.

episodic exclunit modify_entry *exclunit_name old_exclunit_entry new_exclunit_entry* Modify an existing entry in a excluding unit.

episodic exclunit destroy *exclunit_name* Destroy an excluding unit.

exclunit show [*exclunit_name***]** Display excluding unit details.

`episodic job create` *job_name src_repunit tgt_repunit link_name schedule_name* [*evpsn*] [*metadata_only*]

Create a replication job with source replication unit, target replication unit and the link name. The evpsn option [evpsn=yes|evpsn=no] enables or disables Enterprise Vault partition secure notifications. The metadata_only option [metadata_only=yes|metadata_only=no] enables or disables metadata only replication. This feature is not supported with consistency groups and tunables.

`episodic job show` [*job_name*]

Display the definition of a job.

`episodic job enable` *job_name*

Start a job and add it to the replication scheduler queue. The actual replication of data starts on the next schedule of the job.

`episodic job status` [*job_name*]

Display status of job(s).

`episodic episodic job pause` *job_name*

Pause a running job.

`episodic job resume` *job_name*

Resume a paused job.

`episodic job disable` *job_name*

Disable an enabled job.

`episodic job destroy` *job_name* [*option*]

Destroy a job. The administrator can use the force option to clean up the local job. In case of forceful job removal, configuration of the other clusters, which are part of the job, are not modified and repunit(s) are disassociated from the job. Job destroy force should be used in case of unrecoverable configuration or replication direction mismatch.

`episodic job abort` *job_name*

Abort a running job.

`episodic job sync` *job_name*

This command is similar to the job enable command but will stop the replication job after one iteration (full or incremental) is complete. This command can also be used if the primary file system is completely destroyed and needs to be recovered from the secondary site after a disaster.

`episodic job failover` *force job_name* [*link_name*]

Failover the job from the source cluster to one of the available target clusters of link *link_name*.
Job failover can be executed from the target with empty *link_name* when the source cluster is not available. If the failover command executed from the target (when the source is not available), configuration related to the old source is deleted. The administrator can use the job failover command from this old source with the link_name of the new source to configure the leftover source as the target of the current new source.

`episodic job failback` *force job_name link_name*

Failback the job from the source (previous target) cluster to the target (previous source) cluster. link_name is the link to the target cluster.

`episodic job exclude` *job_name exclunit_name*

Add excluding unit to a specified job. exclunit_name is the excluding unit name to add for job job_name.

`episodic job modify` *debug job_name on\off*

Enable or disable debugging for the given job.

`episodic job modify` *tunables job_name netconn rwcount*

Set the tunables (sockets and threads) for the given job.

`episodic repunit create` ***repunit_name repunit_entry*** **[,** ***repunit_entry,...*** **]** Create a replication unit with a given set of entries.

`episodic repunit add_entry` ***repunit_name repunit_entry*** Add a new entry to an existing replication unit.

`episodic repunit remove_entry` ***repunit_name repunit_entry*** Remove an entry from an existing replication unit.

`episodic repunit modify_entry` ***repunit_name old_repunit_entry new_repunit_entry***
Modify an existing entry in a replication unit.

`episodic repunit destroy` ***repunit_name*** **[***option***]** Destroy a replication unit. With force option, repunit is removed even if the associated job exists.

`episodic repunit show` **[***repunit_name***] | [***verbose***]** Display replication unit details.

Display compact list if no option is provided.

Use 'verbose' keyword to display all repunit details including paths.

`episodic schedule create` ***schedule_name minute*** **[***hour***] [***day_of_the_month***] [***month***] [***day_of_the_week***]**
Create a schedule.

`episodic schedule modify` ***schedule_name minute*** **[***hour***] [***day_of_the_month***] [***month***] [***day_of_the_week***]**
Modify an existing schedule.

`episodic schedule show` **[***schedule_name***]** Display a schedule.

`episodic schedule delete` ***schedule_name*** Delete a schedule.

`episodic service start [node_name]` Start the replication service. You can use the optional parameter "node_name" to start the replication service on a specific node of the cluster. Otherwise the service start command automatically figures out the best suitable node in the cluster and starts the replication service there.

`episodic service stop` Stop the replication service.

`episodic service status` Check the status of the replication service.

17.3.4 EXAMPLES

config

Add a VIP address for the replication service.

```
    Replication> episodic config bind 10.209.107.89
Please wait...
Completed
```

Configure VIP address for the replication service on interface pubeth1 and netmask 255.255.248.0.

```
Replication> episodic config bind 10.209.107.89 pubeth1 255.255.248.0
Please wait...
Completed
```

Show the replication VIP address.

```
Replication> episodic config show ip
Replication VIP :: 10.209.107.89
```

Delete the replication VIP from the replication service.

```
Replication> episodic config unbind 10.209.107.89
Please wait...
Completed
```

Export replication key of the local cluster to the home directory of fBssnasfp user at URL `ssnasweb.vxindia.veritas.com`.

```
Replication>  episodic config export_keys scp://ssnas@ssnasweb.vxindia.veritas.com:~/
Password: ******
ACCESS Replication SUCCESS V-288-0 Key file ISAKEY_source_10.209.105.128_2009-05-29
copied successfully at location ssnasweb.vxindia.veritas.com:~/
```

Import key of a remote cluster from the home directory of `ssnas` user at URL `ssnasweb.vxindia.veritas.com`.

```
Replication>  episodic config import_keys scp://ssnas@ssnasweb.vxindia.veritas.com:~/
 ↪ISAKEY_source_10.209.105.236_2009-05-29
Password: ******
```

Show list of cluster(s) whose key is imported by the local cluster.

```
Replication>  episodic config show remote_clus
Link name   Remote cluster ConsoleIP   Remote cluster Replication IP   Time of Key␣
 ↪Import             Time of Authorization
=========   ========================   ============================  ␣
 ↪============================   ======================
--          10.209.105.236             --                            Wed November 7␣
 ↪19:22:47 UTC 2014   --
```

Authorize a remote cluster having console IP 10.209.105.236 and link name as Pune_Shanghai.

```
Replication>  episodic config auth 10.209.105.236 Pune_Shanghai
```

Show list of authorized clusters.

```
Replication>  config show remote_clus
Link name     Remote cluster ConsoleIP   Remote cluster Replication IP   Time of Key␣
↪Import            Time of Authorization
=========     ========================   ============================   ␣
↪============================  ============================
Pune_Shanghai 10.209.105.236             10.209.107.90                   Wed November␣
↪7 19:22:47 UTC 2014   Wed November  7 22:09:46 UTC 2014
```

exclunit

Create an excluding unit `exclu1` with entries `DB_CONFIG`, `SQL_CONFIG`, and `DB_DIR/conf_file`.

```
Replication> exclunit create exclu1 DB_CONFIG,SQL_CONFIG,DB_DIR/conf_file
ACCESS Replication SUCCESS V-288-0 Excluding unit exclu1 created successfully.
```

Display the definition of the exclunit `exclu1`.

```
Replication>episodic exclunit show exclu1

exclunit name: exclu1
=====================

fs name:
--------

paths:
------
DB_CONFIG
SQL_CONFIG
DB_DIR/conf_file

patterns:
---------

jobs:
-----
new_job1
```

Add an entry `DB_DIR/new_conf_file` in the excluding unit definition **exclu1**.

```
Replication> episodic exclunit add_entry exclu1 DB_DIR/new_conf_file
```

Delete an entry `DB_DIR/new_conf_file` from the excluding unit definition **exclu1**.

```
Replication> episodic exclunit remove_entry exclu1 DB_DIR/new_conf_file
```

Modify an entry `DB_DIR/new_conf_file` to `DB_DIR/new_conf_file_1` in the excluding unit definition **exclu1**.

```
Replication> episodic exclunit modify_entry exclu1 DB_DIR/new_conf_file DB_DIR/new_
↪conf_file_1
```

job

Create a job with name `new_job1`, source replication unit `srp1`, target replication unit `trp1`, link name as `Pune_Shanghai`, and schedule as `s1`.

```
Replication> episodic job create new_job1 srp1 trp1 Pune_Shanghai s1
Completed successfully.
```

Display definition of job `new_job1`:

```
Replication> episodic job show new_job1

Job Name              Role      Debug   Schedule   State       Exclunit   Source␣
↪repunit   Target repunit   Link name
========              ====      =====   ========   ========    ========  ␣
↪==============   ==============   =============
new_job1              SOURCE    ON      sch1       ENABLED     --         srp1       ␣
↪    trp1             Pune_Shanghai
```

Check status of a job `new_job1`:

```
Replication>  episodic job status new_job1
Job 'new_job1' configured but not running.
```

Enable a job `new_job1`:

```
Replication> episodic job enable new_job1
```

Pause a running job `new_job1`:

```
Replication>  episodic job pause new_job1
```

Resume a paused job `new_job1`:

```
Replication>  episodic job resume new_job1
```

Disable an enabled job `new_job1`:

```
Replication> episodic job disable new_job1
```

Destroy a disabled job `new_job1`:

```
Replication> episodic job destroy new_job1
```

Abort a running job `new_job1`.

```
Replication> job abort new_job1
```

Start sync on a disabled job `new_job1`.

```
Replication> episodic job sync new_job1
```

Failover the job `new_job1` corresponding to the link `Pune_Shanghai` to target cluster. In planned failover scenarios, the administrator can use this command.

```
Replication> episodic job failover force=no new_job1 Pune_Shanghai
```

Failback the job `new_job1` to the source cluster from the target cluster.

```
Replication> episodic job failback force=no new_job1 Pune_Shanghai
```

Add excluding unit `exclu1` to job `new_job1`:

```
Replication> episodic job exclude new_job1 exclu1
```

Modify the job with tunables.

```
Replication> episodic job modify tunables new_job1 4 1
```

repunit

Create a replication unit `ru1` with entries `fs1/DB_CONFIG`, `fs1/SQL_CONFIG` and `fs1/conf_file`.

```
Replication> episodic repunit create ru1 fs1/DB_CONFIG,fs1/SQL_CONFIG,fs1/conf_file
```

Display the definition of a repunit `ru1`.

```
Replication> episodic repunit show ru1

repunit name: ru1
==================

fs name:
--------
fs1,fs2

paths:
------
fs1/DB_CONFIG
fs1/SQL_CONFIG
fs1/conf_file
fs2/conf_file

patterns:
---------

jobs:
-----
new_job1
```

Add an entry `fs1/new_conf_file` in the replication unit definition `ru1`.

```
Replication> repunit add_entry ru1 fs1/new_conf_file,fs2/new_config_dir1
```

Delete an entry `fs1/new_conf_file` from the replication unit definition `ru1`.

```
Replication> episodic repunit remove_entry ru1 fs1/new_conf_file
```

Modify an entry `fs1/new_conf_file` to `fs1/new_conf_file_1` in the replication unit definition `ru1`.

```
Replication> episodic repunit modify_entry ru1 fs1/new_conf_file fs1/new_conf_file_1
```

schedule

Create a schedule `s1` to run a job every 30 minutes.

```
Replication> episodic schedule create s1 */30
```

Display schedule `s1`.

```
Replication> schedule show s1
Schedule Name                Minute     Hour       Day        Month      WeekDay
===============              ======     =====      ======     ======     ========
s1                           */30       *          *          *          *
```

Modify a schedule `s1` to run a job every 40 minutes.

```
Replication> episodic schedule modify s1 40
```

Delete a schedule `s1`.

```
Replication> episodic schedule delete s1
```

service

Start the replication service.

```
Replication> episodic service start
```

Check the status of the replication service.

```
Replication> episodic service status
Replication service RUNNING on node nasg01_01.
```

Stop the replication service.

```
Replication> episodic service stop
```

18

Storage Commands

18.1 storage

18.1.1 SYNOPSIS

`pool create` *pool_name disk1* [, *disk2*,...] [*isolated={yes|no}*]

`pool adddisk` *pool_name disk1* [, *disk2*,...]

`pool destroy` *pool_name*

`pool free` [*pool_name*]

`pool list`

`pool markdiskspare` *pool_name disk1* [, *disk2*,...]

`pool removediskspare` *pool_name disk1* [, *disk2*,...]

`pool mvdisk` *src_pool dest_pool disk1* [, *disk2*,...]

`pool rename` *old_name new_name*

`pool rmdisk` *disk1* [, *disk2*,...]

`disk list [ stats | detail | paths ]`

`disk replace` *src_disk dest_disk* [*allow_healthy_src*] [*replace_force*]

`hba` [*host_name*]

`fs create simple` *fs_name size pool1* [, *disk1*,...] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

`fs create mirrored` *fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}] [vol_mediatype={hdd|ssd|vxdefault}] [multi_volume={yes|no|vxdefault}]

`fs create striped` *fs_name size ncolumns pool1* [, *disk1*,...] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

`fs create mirrored-stripe` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

`fs create striped-mirror` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}] [vol_mediatype={hdd|ssd|vxdefault}] [multi_volume={yes|no|vxdefault}]

`fs defrag now` *fs_name time*

`fs destroy` *fs_name*

`fs reclaim` *fs_name*

`fs list` [*fs_name*]

`fs online` *fs_name*

`fs offline` *fs_name*

`fs growto` *tier_name fs_name new_length* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vol]

`fs growby` *tier_name fs_name length_change* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vol]

`fs shrinkto` *tier_name fs_name new_length* [balanced=yes|no]

`fs shrinkby` *tier_name fs_name length_change* [balanced=yes|no]

`fs addmirror` *tier_name fs_name pool1* [, *disk1*,...][protection=disk|pool]

`fs rmmirror` *tier_name fs_name [pool_or_disk_name]*

`fs addcolumn` *tier_name fs_name ncolumns pool_or_disk_name*

`fs rmcolumn` *tier_name fs_name*

`fs checkmirror`

`fs resync` [*fs_name*]

`fs checkresync`

`fs setfastresync` *tier_name fs_name [pool_or_disk_name]*

`fs unsetfastresync` *tier_name fs_name*

`fs fsck` *fs_name*

`fs alert set` numinodes|numspace|fullspace value [*fs_name*,...] [*snapshot_name*]

`fs alert unset` numinodes|numspace|fullspace [*fs_name*,...] [*snapshot_name*]

`fs alert show`

`fs tasks`

`fs tasks pause` *fs_name*

`fs tasks resume` *fs_name*

`cloud addservice` *service_name* service_provider=<service_provider>

`cloud listservice` [*service_name*]

`cloud removeservice` *service_name*

`tier add cloud azure` *fs_name tier_name service_name* [*interface*]

`tier add cloud google coldline|multi-regional|nearline|regional` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3` *fs_name tier_name service_name region* [*interface*]

`tier add cloud glacier` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3-compatible` *fs_name tier_name service_name* [*interface*]

`tier add cloud govcloud_us s3` *fs_name tier_name service_name* [*interface*]

`tier add simple` *tier_name fs_name size pool1* [, *disk1*,...]

`tier add mirrored` *tier_name fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool]

`tier add striped` *tier_name fs_name size ncolumns pool1* [, *disk1*,...]

`tier add mirrored-stripe` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool]

`tier add striped-mirror` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool]

`tier remove` *fs_name tier_name*

`tier listfiles` *fs_name tier_name*

`tier stats usage` *fs_name tier_name*

`scanbus`

`snapshot create` *snapshot_name fs_name* [removable=yes|removable=no] [worm=yes|worm=no] [retention_period]

`snapshot restore` *snapshot_name fs_name*

`snapshot destroy` *snapshot_name fs_name*

`snapshot list` [*fs_name*] [*schedule_name*]

`snapshot online` *snapshot_name fs_name* [mode=read-only|mode=read-write]

`snapshot offline` *snapshot_name fs_name*

`snapshot worm set` *snapshot_name fs_name*

`snapshot retention set` *snapshot_name fs_name retention_period*

`snapshot quota on` *fs_name* [capacity_limit]

`snapshot quota off` [*fs_name*]

`snapshot quota list`

`snapshot schedule create` *schedule_name fs_name max_snapshot_limit minute hour day_of_the_month month day_of_the_week max_num_of_parallel_snapshot_removal* [worm=yes|worm=no] [retention_period]

`snapshot schedule modify` *schedule_name fs_name max_snapshot_limit minute hour day_of_the_month month day_of_the_week max_num_of_parallel_snapshot_removal* [worm=yes|worm=no] [retention_period]

`snapshot schedule destroyall` *schedule_name fs_name*

`snapshot schedule preserve` *schedule_name fs_name snapshot_name*

`snapshot schedule show` [fs_name] [schedule_name]

`snapshot schedule delete` *fs_name* [schedule_name]

`quota fs enable` *fs_name* [`userquota|groupquota`]

`quota fs disable` *fs_name* [`userquota|groupquota`]

`quota fs status` *fs_name* [`userquota|groupquota`]

quota fs set userquota|groupquota *user_or_group_names domain_name* [hardlimit|softlimit] [numinodes|numspace] [*value*] [*fs_name*]

quota fs setall userquota | groupquota [hardlimit | softlimit] [numinodes | numspace] [*value*] [*fs_name*]

quota fs setbygroup *group_names domain_name* [hardlimit|softlimit] [numinodes|numspace] [*value*] [*fs_name*]

quota fs show *fs_name* [userquota|groupquota] [*user_or_group_names*] [*domain_name*]

quota fs setdefault userquota|groupquota hardlimit|softlimit numinodes|numspace [*value*] [*fs_name*]

quota fs showdefault [*fs_name*] [userquota|groupquota]

quota cifshomedir enable [userquota|groupquota]

quota cifshomedir disable [userquota|groupquota]

quota cifshomedir status [userquota|groupquota]

quota cifshomedir set userquota|groupquota *user_or_group_names domain_name* [hardlimit|softlimit] [numinodes|numspace] [*value*]

quota cifshomedir setall userquota | groupquota [hardlimit | softlimit] [numinodes | numspace] [*value*]

quota cifshomedir show [userquota|groupquota] [*user_or_group_names*] [*domain_name*]

quota cifshomedir showdetail [userquota|groupquota] [*user_or_group_names*] [*domain_name*]

quota cifshomedir setdefault userquota|groupquota hardlimit|softlimit numinodes|numspace [*value*]

quota cifshomedir showdefault [userquota|groupquota]

fs defrag schedule create *sched_name duration minute [hour] [day] [month] [day_of_week] [node]*

fs defrag schedule remove *sched_name*

fs defrag schedule show *[sched_name]*

fs defrag schedule start *fs_name sched_name*

fs defrag schedule stop *fs_name*

fs defrag schedule list *fs_name*

fs policy add operation=move *policy_name fs_name from_tier to_tier retrieval_option=Expedited\Standard\Bulk pattern* [atime *condition*] [mtime *condition*]

fs policy add operation=delete *policy_name fs_name from_tier pattern* [atime *condition*] [mtime *condition*]

fs policy modify *policy_name pattern* [atime *condition*] [mtime *condition*]

fs policy delete *policy_name fs_name*

fs policy rename *old_policy_name new_policy_name*

fs policy list *[fs_name]*

fs policy run *policy_name*

fs policy dryrun *policy_name*

fs policy status *policy_name*

`fs policy abort` *policy_name*

`fs policy pause` *policy_name*

`fs policy resume` *policy_name*

`fs policy schedule create` *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

`fs policy schedule modify` *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

`fs policy schedule remove` *fs_name*

`fs policy schedule list` *fs_name*

`fs retention set` *path rtime*

`fs retention show` *path*

`fs worm set` *fs_name* [minret] [maxret]

`fs worm get` *fs_name*

18.1.2 DESCRIPTION

The `storage` commands create logical pools and file systems.

File systems consist of metadata and file data. Metadata consists of information like last modification time, creation time, permissions, and so on. The total amount of space taken by the metadata depends upon the number of files. A file system that contains many smaller files requires more space to store the metadata, and a file system with fewer large files requires less space to store the metadata.

When a file system is created, some space is set aside initially for the metadata. This space is generally proportional to the size of the file system. This is the reason for the non-zero usage percentage in the output of `fs list` just after the creation of the file system. The space that was set aside for the metadata would grow or shrink as and when required. A file system on a 1 GB volume would take around 40 MB (about 4%) initially for storing the metadata, whereas a file system of size 10 MB would take around 7.3 MB (73%) initially for storing the metadata.

18.1.3 OPTIONS

device

Device on which the operation takes place.

target-name

Name of the iSCSI target at which SCSI LUNs are available. *target-name* should conform to the naming rules defined in RFC3721.

encrypt={yes|no}

Specify whether to create the file system on encrypted volume. If set to `on`, file system is created on encrypted volume. The default value is *encrypt=off*.

pdir_enable={yes|no}

Enable or disable partition directory for the file system. The default value is *pdir_enable=no*, which means partition directory is disabled for the file system.

worm={yes|no}

Specify whether to create a worm-enabled file system. If set to `yes`, file system is created with WORM support enabled. The default value is *worm=no*.

vol_mediatype={hdd|ssd|vxdefault}

Specify the disk type to be used to create file system. If set to `hdd`, file system will be created on hdd disks. If set to `ssd`, file system will be created on ssd disks. The default value is set to *vol_mediatype=vxdefault*.

multi_volume={yes|no|vxdefault}

Specify whether to create multiple volumes for a file system. If set to `yes`, multiple volumes will be created. If set to `no`, single volume will be created. The default value is *multi_volume=vxdefault*; it will create single volume.

workload={virtualmachine|mediaserver}

Type of workload using this file system. The workload type cannot be changed after the file system is created. If the workload type is virtualmachine, then all the files in the file system have a minimum extent size of 1 MB. This reduces file system fragmentation and improves virtual machine I/O performance.

layout={striped|striped-mirror|mirrored-stripe}

Layout of the underlying volume on which the file system is created. The default value is layout=striped.

discovery-address

Discovery address is the target address at which the initiator can request a list of targets using SendTarget's text request as specified in the iSCSI protocol of RFC3720. If no port is specified with the discovery address, the default port 3260 is used. IPv4 and IPv6 addresses are supported. Examples:

```
192.168.0.4
192.168.0.4:3260
2001:c90::211:9ff:feb8:a9e9
[2001:c90::211:9ff:feb8:a9e9]:3260
```

initiatorname-prefix

initiatorname-prefix is a name that conforms to the naming rules for initiator and target names as specified in RFC3721. Initiator names for nodes in the cluster are generated by appending the node number to this prefix.

portal-address

Portal address is the location at which the target is accessible. IPv4 and IPv6 addresses are supported. Examples:

```
192.168.0.4
192.168.0.4,1
192.168.0.4:3260
192.168.0.4:3260,1
2001:c90::211:9ff:feb8:a9e9
2001:c90::211:9ff:feb8:a9e9,1
[2001:c90::211:9ff:feb8:a9e9]:3260
[2001:c90::211:9ff:feb8:a9e9]:3260,10
```

`pool create` *pool_name disk1* [, *disk2*,...] [*isolated={yes|no}*]

Create a logical pool from a given set of disks. If isolated=yes, then a new disk group is created. The default value for isolated is isolated=no.

`pool adddisk` *pool_name disk1* [, *disk2*,...]

Add a set of disks to a logical pool.

`pool destroy` *pool_name*

Destroy a pool.

`pool free` [*pool_name*]

List free space in each of the pools.

`pool list`

List all the pools.

`pool mvdisk` *src_pool dest_pool disk1* [, *disk2*,...]

Move disks from one pool to another.

`pool rename` *old_name new_name*

Rename a pool.

`pool rmdisk` *disk1* [, *disk2*,...]

Remove disks from a pool.

`pool markdiskspare pool_name` *disk1* [, *disk2*,...]

Mark a disk as a spare disk and add it to a pool which is later used for hot-relocation. In case of failure of a disk or a plex, the affected subdisks are relocated to disks designated as spare disks.

`pool removediskspare pool_name` *disk1* [, *disk2*,...]

Remove the spare disk flag set on a disk by `markdiskspare` command.

`disk list stats`

Display the aggregated information of all the disks.

`disk list detail`

Display properties of all the disks.

`disk list paths`

Display the list of multiple paths of all the disks from all the nodes in the cluster.

`disk replace` *src_disk dest_disk* [*allow_healthy_src*] [*replace_force*]

The `disk replace` command replaces the specified source disk with the destination disk in the cluster. This command is helpful in cases when the source disk is faulted and the data in the faulted disk needs to be recovered on the destination disk. The `allow_healthy_src` option is used when a healthy source disk is to be replaced by the destination disk. For disk replacement, both the source and destination disks should be part of the same pool and the destination disk should also belong to the same node as the source disk. If the destination disk contains some data, you can use the `replace_force` option.

`hba` [*host_name*]

Display World Wide Name (WWN) information of all or a specified node of the cluster.

`fs create simple` *fs_name size pool1* [, *disk1*,...] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a simple file system with a specified size on one of the specified pools/disks and make it online.

`fs create mirrored` *fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a mirrored file system with a specified number of mirrors and make it online.

`fs create striped` *fs_name size ncolumns pool1* [, *disk1*,...] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a striped file system with a specified number of stripes and make it online.

`fs create mirrored-stripe` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a mirrored-striped file system with a specified number of mirrors and stripes and make it online.

`fs create striped-mirror` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a striped-mirrored file system with a specified number of mirrors and stripes and make it online.

`fs defrag now` *fs_name time*

Defragment a file system now. The *time* value should be larger than 1 minute or infinite.

`fs destroy` *fs_name*

Destroy a file system.

`fs reclaim` *fs_name*

Reclaim thin storage under a file system.

`fs list` [*fs_name*]

List all the file systems.

`fs online` *fs_name*

Make the file system online.

`fs offline` *fs_name*

Make the file system offline.

`fs growto` *tier_name fs_name new_length* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vols]

Grow the file system's given tier to a specified size. If balanced=yes, all the volumes of the file system are grown by the same percentage which is calculated based on the specified new_length. If balanced=no, the file system is grown linearly starting from the last volume.

`fs growby` *tier_name fs_name length_change* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vols]

Grow the file system's given tier by a specified size. If balanced=yes, all the volumes of the file system are grown by the same percentage which is calculated based on the specified length_change. If balanced=no, the file system is grown linearly starting from the last volume.

`fs shrinkto` *tier_name fs_name new_length* [balanced=yes|no]

Shrink the file system's given tier to a specified size. If balanced=yes, all the volumes of the file system are shrunk by the same percentage which is calculated based on the specified new_length. If balanced=no, the file system is shrunk linearly starting from the last volume.

`fs shrinkby` *tier_name fs_name length_change* [balanced=yes|no]

Shrink the file system's given tier by a specified size. If balanced=yes, all the volumes of the file system are shrunk by the same percentage which is calculated based on the specified length_change. If balanced=no, the file system is shrunk linearly starting from the last volume.

`fs addmirror` *tier_name fs_name pool1* [, *disk1*,...] [protection=disk|pool]

Add a mirror to the tier of file system.

`fs rmmirror` *tier_name fs_name [pool_or_disk_name]*

Remove a mirror from the tier of file system that is spanning on the specified pools and disks.

`fs addcolumn` *tier_name fs_name ncolumns pool_or_disk_name*

Add the specified number of columns to the tier of the file system. In case of a striped file system, the number of disks specified should be equal to *ncolumns*. In case of mirrored-stripe and striped-mirror, the disks specified should be equal to (ncolumns * number_of_mirrors_in_fs)

`fs rmcolumn` *tier_name fs_name*

Remove a column from the tier of the file system.

`fs checkmirror`

Show file systems that have stale mirrors.

`fs resync` [*fs_name*]

Resynchronize all stale mirrors for all file systems or for a certain file system.

`fs checkresync`

Show resynchronization progress running in the background.

`fs setfastresync` *tier_name fs_name [pool_or_disk_name]*

Enable fast resync for the specified tier name of file system.

`fs unsetfastresync` *tier_name fs_name*

Disable fast resync for the specified tier name of file system.

`fs fsck` *fs_name*

Check and repair the specified file system.

`fs alert set numinodes|numspace|fullspace value` *[fs_name]* [*snapshot_name*]

Allow users to set alerts on file systems and snapshot usage. The user can set alerts based on the number of inodes used or the file system space used. The value should be in a percentage when the alert is being set for the disk space. The default alert set for the disk space usage is at 80%. When the alert set is numinodes, the input should be the number of inodes. The default alert value for numinodes is set at 0. This will not send any alert till you set it to a different value. When this command is not supplied with the file system name, it changes the default system wide value for the alerts. For the file systems on which alerts are set explicitly, the alert is sent based on the value specified and not the default value. The alerts can be observed by the user in the "Report> showevents" CLI command. You can specify a comma-separated list of file systems.

fullspace is the tunable for file system full protection. For the file system to run efficiently, users should always reserve some space for the file system, instead of using 100% of the space. When file system usage is above the limit set by fullspace, all the NFS/CIFS shares on top of the file system are automatically changed to readonly to prevent the file system from becoming full. When users grow the file system or delete some files to get enough free space, the shares are automatically changed back to readwrite (there might be a delay for up to 5 minutes). By default, fullspace is 0, which means this function is disabled.

`fs alert unset numinodes|numspace|fullspace` *[fs_name]* [*snapshot_name*]

Allow users to unset the alerts set on the file system and the snapshot name. If an alert on any file system is unset, the user gets an alert for the file system based on the default values. You can specify a comma-separated list of file systems. When fullspace is unset (or set to 0), the shares that were changed to readonly due to file system high usage are changed back to readwrite mode immediately.

`fs alert show`

Show the current disk space usage and the alert value set. "(D)" beside the value shows that the value is the default value through the system.

`fs tasks pause` *fs_name*

Pause all the ongoing tasks for a given file system.

`fs tasks resume` *fs_name*

Resume all the tasks which are in paused state for a given file system.

`cloud addservice` *service_name* service_provider=<service_provider>

Add a public cloud subscription to Veritas Access as a cloud service with a name. The added subscription is accessed using *service_name* thereafter. You are prompted to provide the subscription credentials. Credentials are verified and the cloud service is added.

`cloud listservice` [*service_name*]

List added cloud services. If *service_name* is provided, then only that cloud service is listed. Otherwise all configured services are listed.

`cloud removeservice` *service_name*

Remove the cloud service *service_name*.

Warning: Service removal fails if there are active cloud tiers associated with this service at time of removal.

`tier add simple` *tier_name fs_name size pool1* [, *disk1*,...]

Add a simple tier to the specified file system on one of the specified pools and disks.

`tier add mirrored` *tier_name fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool]

Add a mirrored tier to the specified file system.

`tier add striped` *tier_name fs_name size ncolumns pool1* [, *disk1*,...]

Add a striped tier to the specified file system.

`tier add mirrored-stripe` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool]

Add a mirrored-stripe tier to the specified file system.

`tier add striped-mirror` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool]

Add a striped-mirror tier to the specified file system.

`tier add cloud azure` *fs_name tier_name service_name* [*interface*]

`tier add cloud google coldline|multi-regional|nearline|regional` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3` *fs_name tier_name service_name region* [*interface*]

`tier add cloud glacier` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3-compatible` *fs_name tier_name service_name* [*interface*]

`tier add cloud govcloud_us s3` *fs_name tier_name service_name* [*interface*]

Add a cloud tier to the specified file system using the service name and related arguments. You can specify if you want to add an Azure, Google, AWS S3, AWS Glacier, AWS GovCloud(US), or S3-compatible cloud storage tier by specifying the appropriate option. S3-compatible is any third-party implementation of the Amazon S3 APIs. Interface is an optional argument. It takes the name of the public data network interface and uses this interface during cloud data transfer. If vxdefault is passed to interface then it will pick one of the public data network interface.

The supported regions of the Google coldline and nearline cloud services are the following:

- Taiwan
- Tokyo
- Singapore
- Belgium
- Iowa
- SouthCarolina
- NorthernVirginia
- Oregon
- US-any-region
- Europe-any-region
- Asia-any-region

The supported regions of the Google regional cloud services are the following:

- Taiwan
- Tokyo
- Singapore
- Belgium
- Iowa
- SouthCarolina
- NorthernVirginia
- Oregon

The supported regions of the Google multi-regional cloud services are the following:

- US
- Europe
- Asia

The supported regions of the Amazon S3 service are the following:

- California (us-west-1)
- Central (ca-central-1)
- Frankfurt (eu-central-1)
- Ireland (eu-west-1)
- London(eu-west-2)
- Mumbai (ap-south-1)
- Ohio (us-east-2)
- Oregon (us-west-2)
- Seoul (ap-northeast-2)
- Singapore (ap-southeast-1)

- Sydney (ap-southeast-2)
- SaoPaulo (sa-east-1)
- Tokyo (ap-northeast-1)
- Virginia (us-east-1)

The Amazon Glacier tier does not support the following regions: Singapore or SaoPaulo.

Region is irrelevant to an S3-compatible cloud storage service.

A file system uses AWS signature version 4 to add authentication information to the requests sent to Amazon S3, Glacier, GovCloud(US), and S3-compatible services. An S3-compatible service can be added as a cloud service using AWS signature version 2 if the S3-compatible service provider supports AWS signature version 2. When such an S3-compatible cloud service is added as a cloud tier to a file system, AWS signature version 2 is used for requests sent to the S3-compatible cloud service.

Warning: When a cloud storage service is used as a cloud tier for a file system, Veritas Access exclusively owns all the buckets and the objects created by Veritas Access. Any attempt to tamper with these buckets or objects outside of Veritas Access corrupts the files represented by those modified objects.

`tier remove` *fs_name tier_name*

Remove a tier from the file system. All files on the particular tier will get relocated to the primary tier. Ensure that you remove the policy by running `fs policy delete <policy_name> <fs_name>` before running the tier remove command.

`tier listfiles` *fs_name tier_name*

Show all the files that are on the specified tier.

`tier stats usage` *fs_name tier_name*

Show the total usage of the specified cloud tier in the file system.

`scanbus`

Scan all the SCSI devices connected to all or a specified node of the cluster.

`snapshot create` *snapshot_name fs_name* [removable=yes|removable=no] [worm=yes|worm=no] [retention_period]

Create a snapshot for a specified file system. If the removable attribute is `yes` and if it is offline, then it is removed automatically, if the file system runs out of space. To create a WORM-enabled snapshot, set the WORM attribute as `yes`. Retention period can be set only if WORM attribute is set to `yes`. Retention period can be given in format [1-9](d|D|m|M|y|Y) or yyyy-mm-dd.

`snapshot restore` *snapshot_name fs_name*

Restore a file system by a given snapshot. If filesystem is WORM-enabled, restore is not performed on the specified snapshot.

`snapshot destroy` *snapshot_name fs_name*

Destroy the snapshot of a file system. If retention period is active on the specified snapshot, the snapshot is not destroyed.

`snapshot list` [*fs_name*] [*schedule_name*]

Displays the schedule and all the snapshots of the specified file system. If only the file system is specified, all the snapshots for that file system are displayed. If file system and schedule are not specified, snapshots of all the file systems are displayed.

`snapshot online` *snapshot_name fs_name* [mode=read-only|mode=read-write]

It mounts the created snapshot in the given mode. If mode is not specified, by default, read-only mode is selected. WORM-enabled snapshot cannot be online in read-write mode.

`snapshot offline` *snapshot_name fs_name*

Make the snapshot offline.

`snapshot worm set` *snapshot_name fs_name*

Enable WORM on a specified snapshot.

`snapshot retention set` *snapshot_name fs_name retention_period*

Set retention on a WORM-enabled snapshot. In enterprise mode, retention period can be reduced. In compliance mode, retention period can only be extended.

`snapshot quota on` *fs_name* [capacity_limit]

Disallow creation of snapshots on the given file system when the space used by all the snapshots of that file system exceeds a given capacity limit. The space used by the snapshots is not restricted.

`snapshot quota off` [*fs_name*]

Disable quota capacity limit for a specified system.

`snapshot quota list`

Display snapshot quota information of all the file systems.

`snapshot schedule create` *schedule_name fs_name max_snapshot_limit minute hour day_of_the_month month year day_of_the_week max_num_of_parallel_snapshot_removal* [worm=yes|worm=no] [retention_period]

Create schedule for automated snapshot creation of a particular file system.

`snapshot schedule modify` *schedule_name fs_name max_snapshot_limit minute hour day_of_the_month month year day_of_the_week max_num_of_parallel_snapshot_removal* [worm=yes|worm=no] [retention_period]

Modify schedule for automated snapshot creation of a particular file system.

`snapshot schedule destroyall` *schedule_name fs_name*

Destroy all automated snapshots corresponding to a given schedule name and file system name (excluding the preserved and online snapshots).

`snapshot schedule preserve` *schedule_name fs_name snapshot_name*

Preserve a limited number of snapshots corresponding to an existing schedule and a specific file system name so that they are not removed as part of the snapshot schedule autoremove command.

`snapshot schedule show` [fs_name] [schedule_name]

Show all schedules that have been set for automated snapshot creation.

`snapshot schedule delete` *fs_name* [schedule_name]

Deletes the schedule set for automated snapshot creation for a particular file system or for a particular schedule.

`quota fs enable` *fs_name* [`userquota|groupquota`]

`quota cifshomedir enable` [`userquota|groupquota`]

Enable user or group quota on a file system or CIFS home directories.

`quota fs disable` *fs_name* [`userquota|groupquota`]

`quota cifshomedir disable` [`userquota|groupquota`]

Disable user or group quota on a file system or CIFS home directories.

`quota fs status` *fs_name* [`userquota|groupquota`]

`quota cifshomedir status` [`userquota|groupquota`]

Show the status of quota settings on a file system or CIFS home directories. Quota setting status only shows if the quota is enabled or disabled.

`quota fs set userquota | groupquota` *user_or_group_names domain_name* [`hardlimit``|``softlimit`] [`numinodes|numspace`] [*value*] [*fs_name*]

`quota cifshomedir set userquota | groupquota` *user_or_group_names domain_name* [`hardlimit``|``softlimit`] [`numinodes|numspace`] [*value*]

Set quota value for the users or groups on a file system or CIFS home directories. If *value* is not specified, then the default value set from the respective `setdefault` commands is used to configure the quota limit. If *value* is 0, it is treated as unlimited quota. If all values of user or group quota are 0, the user or group are automatically deleted from the quota settings, which means `quota fs status` does not show this user's or group's settings as all quota values are unlimited for it.

`quota fs setall userquota|groupquota [hardlimit|softlimit] [numinodes|numspace]` [*value*] [*fs_name*]

`quota cifshomedir setall userquota|groupquota [hardlimit|softlimit] [numinodes|numspace]` [*value*]

Set quota value for all the users and groups for whom the quota has already been set with `set` commands. Other users and groups (for whom quota has not been set previously) are not affected. If *value* is not specified, then the default value set from the respective `setdefault` commands is used to configure the quota limit. If *value* is 0, it is treated as an unlimited quota. If all values of user or group quota are 0, the user or group are automatically deleted from the quota settings, which means `quota fs status` does not show this user's or group's settings, as all quota values are unlimited for it.

`quota fs setbygroup` *group_names domain_name* [`hardlimit|softlimit`] [`numinodes|numspace`] [*value*] [*fs_name*]

Set the user quota for users of specified groups.

`quota fs show` *fs_name* [`userquota|groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir show` [`userquota|groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir showdetail` [`userquota|groupquota`] [*user_or_group_names*] [*domain_name*]

Show the quota values that are already set. This also shows the consumed (used space) quota of the users and groups. `cifshomedir show` shows the general quota values on the CIFS home directories. `cifshomedir showdetail` shows the detailed quota values set on each file system for CIFS home directories.

`quota fs setdefault userquota``|``groupquota hardlimit | softlimit numinodes | numspace` [*value*] [*fs_name*]

`quota cifshomedir setdefault userquota|groupquota hardlimit|softlimit numinodes|numspace` [*value*]

Set the default value that is used for the quota limits. The values are stored in the configuration file only. The actual application of quota can be done with `set` and `setall` commands using these default values.

`quota fs showdefault` [*fs_name*] [`userquota|groupquota`]

`quota fs showdefault` [`userquota|groupquota`]

Show the default quota values from the configuration file.

`fs defrag schedule create` *sched_name duration minute [hour] [day] [month] [day_of_week] [node]*

Creates a defrag schedule. The time and frequency of this schedule are specified in the command line in crontab format. This scheduled job runs on the node specified. If this node is not online at the time of the job, then this particular defrag job runs on the CFS primary. The scheduled defrag job may last up to the specified duration hours or minutes.

`fs defrag schedule remove` *sched_name*

Remove the defrag schedule by name *sched_name*. Make sure none of the file systems have this *sched_name* assigned.

`fs defrag schedule show` *[sched_name]*

Show the defrag schedule information for the schedule by name *sched_name*. If *sched_name* is not specified, then information about all the schedules are displayed.

`fs defrag schedule start` *fs_name sched_name*

Assign or start the defrag schedule by name *sched_name* for the file system by name *fs_name*.

`fs defrag schedule stop` *fs_name*

Stop the scheduled defrag schedule for the file system by name *fs_name*.

`fs defrag schedule list` *fs_name*

List the scheduled defrag job details for the file system by name *fs_name*.

`fs policy add operation=move` *policy_name fs_name from_tier to_tier retrieval_option=Expedited\|Standard\|Bulk pattern* [`atime` *condition*] [`mtime` *condition*]

Create a data movement policy for the file system *fs_name*. The policy moves files and directories that meet the criteria from the source tier (*from_tier*) to the destination tier (*to_tier*). Movement can be from the cloud tier to a disk tier or from a disk tier to the cloud tier. The retrieval option determines the time needed to move files from Amazon Glacier to on-premises. This option is not used when moving files from on-premises to Amazon Glacier. Expedited retrievals typically complete within 1-5 minutes. The expedited option is expensive and you should use it conservatively. Files moved from the Amazon Glacier tier with the expedited option might return with the following error: InsufficientCapacityException (503 service unavailable). This error occurs if there is insufficient capacity to process the expedited request.

This error only applies to expedited retrievals and not to standard or bulk retrievals. Standard retrievals typically complete within 3-5 hours. Bulk retrievals typically complete within 5-12 hours. Bulk is the default option. **Note:** The maximum file size for moving files to AWS Glacier is 4 GB. Pattern identifies the files or directories that you want to move between tiers. Pattern is required. You can further restrict the files or directories to move by specifying the last accessed time (`atime`) or the last modified time (`mtime`). The `atime` and `mtime` criteria are optional.

`fs policy add operation=delete` *policy_name fs_name from_tier pattern* [`atime` *condition*] [`mtime` *condition*]

Create a data deletion policy for the file system *fs_name*. The policy deletes files and directories that meet the criteria from the specified tier (*from_tier*). Pattern identifies the files or directories that you want to delete. Pattern is required. You can further restrict the files or directories to delete by specifying the last accessed time (`atime`) or the last modified time (`mtime`). The `atime` and `mtime` criteria are optional.

`fs policy modify` *policy_name pattern* [`atime` *condition*] [`mtime` *condition*]

Modify the pattern, atime, and mtime search criteria for the file movement or deletion of the policy. atime and mtime are optional criteria. You cannot change the policy operation or change the storage tiers that were specified when the policy was created.

`fs policy delete` *policy_name fs_name*

Stop any data movement or data deletion policy that was set for a file system. You cannot delete a policy if the policy is running.

`fs policy rename` *old_policy_name new_policy_name*

Rename an existing policy to a new policy name. You cannot rename a policy if the policy is running.

`fs policy list [fs_name]`

List all the data movement and data deletion polices that are set for all the file systems. If *fs_name* is included in the command, then the command lists all the policies for the specified file system.

`fs policy run` *policy_name*

Move or prune files according to the configured file system policy *policy_name*. The policy runs in the background until it gets completed, or until you abort or pause the policy. If a policy run encounters an error, it is retried 5 times before the run is aborted.If the policy is already active but paused, you are prompted on whether you want to resume the paused job or you want to start a new run. You cannot run a policy if poilcy is scheduled or the last instance is still running.

`fs policy dryrun` *policy_name*

Perform a dry run of the file system policy *policy_name*. This command previews the running of the policy, but does not actually move or prune any files. Use this command to estimate the I/O activity involved if the policy is run. The dry run collects the statistics, such as the number of files and the amount of data that will be moved. You cannot perform a dry run if the policy is already running.

`fs policy status` *policy_name*

Show the status of the currently running policy or dry run of the policy *policy_name*. If the policy is not currently running, the status shows the most recent run. The information includes the type of the run (normal or dry run), the status, the total data, the amount of data moved so far, the number of files, and the number of files moved or deleted so far.

`fs policy abort` *policy_name*

Abort the currently executing policy run or dry run for the policy *policy_name*. The abort is immediate and interrupts any data movement in progress. The aborted policy cannot be resumed using the `fs policy resume` command. If you need to restart the policy, start a new run with the `fs policy run` command.

`fs policy pause` *policy_name*

Pause the currently executing policy run or dry run for the policy *policy_name*. The pause is immediate and interrupts any data movement in progress. You can resume the policy using the `fs policy resume` command. You can abort the paused policy using the `fs policy abort` command. When you pause a policy, the scheduled runs of the policy are also skipped until the policy is resumed.

`fs policy resume` *policy_name*

Restarts the policy run or dry run that was paused with the `fs policy pause` command. The policy resumes from the point where the policy run was interrupted.

`fs policy schedule create` *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

Create the file system policy schedule for the file system *fs_name*. The schedule uses a time format similar to the format used in UNIX cron configuration files. The schedule applies to the file system policies created using the `fs policy create` command. When a schedule is set for a particular file system, all the policies for that file system are started at the scheduled times. If any policy is paused using the `fs policy pause` command, the policy does not run at the scheduled time. The policy is skipped until the policy is resumed using the `fs policy resume` command.

About the schedule format:

A schedule is specified in a format similar to the UNIX crontab format. The format uses five fields to specify when the schedule runs:

`minute` Enter a numeric value between 0-59, or an asterisk (*), which represents every minute. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`hour` Enter a numeric value between 0-23, or an asterisk (*), which represents every hour. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`day_of_the_month` Enter a numeric value between 1-31, or an asterisk (*), which represents every day of the month. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`month` Enter a numeric value between 1-12, or an asterisk (*), which represents every month. You can also use the names of the month. Enter the first three letters of the month (you must use lowercase letters). You can also enter a step value (*/x), or a range.

`day_of_the_week` Enter a numeric value between 0-6, where 0 represents Sunday, or an asterisk (*), which represents every day of the week.

You can also enter the first three letters of the week (you must use lowercase letters). You can also enter a step value (*/x), or a range.

A step value (*/x) specifies that the schedule runs at an interval of x. The interval should be an even multiple of the field's range. For example, you could specify */4 for the hour field to specify every four hours, since 24 is evenly divisible by 4. However, if you specify */15, you may get undesired results, since 24 is not evenly divisible by 15. The schedule would run after 15 hours, then 7 hours.

A range of numbers (two values separated by a hyphen) represents a time period during which you want the schedule to run.

Examples:

- To run the schedule every two hours every day: 0 */2 * * *
- To run the schedule on 2:00 a.m. every Monday: * 2 * * 1
- To run the schedule at 11:15 p.m. every Saturday: 15 23 * * 6

fs policy schedule modify fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week] Modifies the file system policy schedule for the file system *fs_name*. The schedule uses a time format similar to the format used in UNIX cron configuration files. Refer to the `fs policy schedule create` section for the detailed description of the schedule format.

`fs policy schedule remove` ***fs_name*** Removes the file system policy schedule associated with the file system *fs_name*.

`fs policy schedule list` ***fs_name*** Lists the file system policy schedule associated with the file system *fs_name*.

`fs retention set` ***path rtime*** Sets the retention on a file path *path* or on all the files that are currently present in specified path *path*. *rtime* can be in seconds, hours, months, days or years (s|S|h|H|d|D|m|M|y|Y) or mm-dd-yyyy format or mm-dd-yyyy:hh:mm:ss format or 0. Setting *rtime* as 0 will remove the retention lock for the specified file path *path* or for all the files which are present in the path *path*, if it is a directory. This is only allowed in enterprise mode.

`fs retention show` ***path*** Shows the retention value applied on the specified file path *path*. Retention value is expressed in UTC (Coordinated Universal Time).

`fs worm set` ***fs_name*** **[minret] [maxret]** Enables WORM support and sets specified file system level minimum and maximum retention for a particular file system. [minret] and [maxret] can be in seconds, hours, months, days or years (s|S|h|H|d|D|m|M|y|Y). If vxdefault is passed, the retention value is unset for the specified parameter.

fs worm get *fs_name* Lists WORM status, minimum and maximum retention period for specified file system. Retention values are in seconds.

fs tasks Lists the long-term file system operations which are in progress on the system. Each task provides the file system name, task type, state and the status of the progress in percentage. Most of the tasks represent I/O being performed on file system volumes. Operations such as read-writeback recovery for mirrored volumes, and parity recalculation for RAID-5 volumes involve moderate to large amounts of I/O. During rolling upgrade, if any of the ECREBUILD/ATCOPY/ATCPY/PLXATT/VXRECOVER/RESYNC/RECOV tasks are running, you may need to wait for the tasks to complete. Especially in FSS (or erasure coding enabled) clusters, it is important to wait for these tasks to complete before you upgrade, reboot, or shut down the node(s).

18.1.4 EXAMPLES

Display list of disks in tabular form.

```
Storage> disk list stats
Disk              nasgw9_2  nasgw9_1  nasgw9_3  nasgw9_4  nasgw9_5  nasgw9_6
====              ======    ======    ======    ======    ======    ======
AMS_WMS0_0        OK        OK        OK        OK        OK        OK
AMS_WMS0_1        OK        OK        OK        OK        OK        OK
DS4800-0_0        OK        OK        OK        OK        OK        OK
DS4800-0_1        OK        OK        OK        OK        OK        OK
nasgw9_2_Disk_0   OK        NOT_CONN  NOT_CONN  NOT_CONN  NOT_CONN  NOT_CONN
nasgw9_1_Disk_1   OK        OK        OK        OK        OK        OK
EMC_CLARiiON0_0   OK        OK        OK        OK        OK        OK
EMC_CLARiiON0_1   OK        OK        OK        OK        OK        OK
```

Display the list of disks and their properties.

```
Storage> disk list detail
Disk              Pool              Enclosure   Array Type    Size (Use%)   Transport
↪ID                    Serial Number
====              ==============    ==========  ==========    ============  ==========
↪==================  ==============
ams_wms0_10       *coordinator*     ams_wms0    A/A           1.00G 0.0%    FC
↪HITACHI:DF600F:4:1  71011588000A
ams_wms0_11       *coordinator*     ams_wms0    A/A           1.00G 0.0%    FC
↪HITACHI:DF600F:4:2  71011588000B
ams_wms0_12       p03               ams_wms0    A/A           1.00G 27.5%   FC
↪HITACHI:DF600F:4:3  71011588000C
ams_wms0_13       p03               ams_wms0    A/A           1.00G 18.8%   FC
↪HITACHI:DF600F:4:4  71011588000D
ams_wms0_14       p04               ams_wms0    A/A           1.00G 17.8%   FC
↪HITACHI:DF600F:4:5  71011588000E
```

Show the list of multiple paths of disks connected to all the nodes of the cluster. Also show the status of those paths on each node in the cluster.

```
Storage> disk list paths
Disk              Paths    nasgw78_2               nasgw78_1
====              =====    ========                ========
AMS_WMS0_0        Path 1   primary,enabled,active  primary,enabled,active
AMS_WMS0_1        Path 1   primary,enabled,active  primary,enabled,active
nasgw78_2_Disk_0  Path 1   enabled,active          -
nasgw78_1_Disk_1  Path 1   -                       enabled,active
```

Replace a source disk in a cluster with a destination disk.

```
Examples:
1) Replace a faulted source disk in the cluster with a destination disk.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2

2) Replace a healthy source disk in the cluster with a destination disk.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3 allow_healthy_
↪src=Yes
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2

3) Replace a healthy source disk in a cluster with a destination disk which contains␣
↪some data.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3 allow_healthy_
↪src=Yes replace_force=Yes
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2
```

Create a mirrored file system with name `fs1` with disks from the pools `pool1` and `pool2`.

```
Storage> fs create mirrored fs1 100M 2 pool1,pool2
100% [#] Creating mirrored filesystem
```

Defragment a file system now.

```
Storage> storage fs defrag now fs_t 2M
Do you want to continue? yes|no
yes
```

You can check defrag status by running fs list command

```
Storage> storage fs list fs_t
General Info:
===============
Block Size:       8192 Bytes
Version:          Version 10
phoenix_01:        online
phoenix_02:        online

primary
=======
Size:            100.00M
Use%:            6%
Layout:          simple
Mirrors:         -
Columns:         -
Stripe Unit:     0.00 K
Meta Data:       metaOk
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   vmdk0_4

FS Type:           Normal
```

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```
Defrag Status: Done successfully
Fullfsck Status: Not Running
Resync   Status: Not Running
Rollsync Status: Not Running
Relayout Status: Not Running
```

List the file system properties of vmdk_fs.

```
Storage> fs list vmdk_fs
General Info:
===============
Block Size:       8192 Bytes
Version:          Version 11
Workload:         virtualmachine datastore
Extent Size:      1m
IAS_01:        online
IAS_02:        online

primary
=======
Size:            100G
Use%:            5%
Layout:          striped
Mirrors:         -
Columns:         4
Stripe Unit:     512 K
Metadata:        metaOk
FastResync:      Disabled
```

Add a mirror to the tier of file system fs1.

```
Storage> fs addmirror tier1 fs1 pool3,pool4
```

Remove a mirror of tier of file system fs1 that is residing on Disk AMS_WMS0_0.

```
Storage> fs rmmirror tier1 fs1 AMS_WMS0_0
```

Add two columns to tier of file system fs1.

```
Storage> fs addcolumn tier1 fs1 2 pool3
```

Remove column from tier of file system fs1.

```
Storage> fs rmcolumn tier1 fs1
```

Show file systems that have stale mirrors.

```
Storage> fs checkmirror
fs_name:
----------
mirror3
```

Resynchronize all stale mirrors for all file systems.

```
Storage> fs resync
Resync stale mirror for file systems are started in background.
```

Resynchronize all stale mirrors for a particular file system.

```
Storage> fs resync mirror3
Resync stale mirror for file system mirror3 is started in background.
```

Show resynchronization progress running in background.

```
Storage> fs checkresync
FS                  MIRROR              TYPE      PROGRESS  START_TIME
↪USED_TIME   REMAINING_TIME
================================================================================================================
mir2                tier 1,mirror 02    RESYNC    6.46%     Jun/05/2011/09:39:53
↪0:5:9       1:14:34
mir3_roll2          tier 1          ROLLBACK  1.28%     Jun/05/2011/14:51:40
↪0:0:12      15:23
mir3                tier 1,mirror 03    RESYNC    7.67%     Jun/05/2011/15:10:26
↪0:1:14      14:50
```

Make a file system offline.

```
Storage> fs offline fs1
100% [#] Offline filesystem
```

Check and repair a file system while it is in offline state.

```
Storage> fs fsck fs1
```

Make a file system online.

```
Storage> fs online fs1
100% [#] Online filesystem
```

Check and repair a file system while it is in offline state.

```
Storage> fs fsck fs1
ACCESS fs ERROR V-288-693 fs1 must be offline to perform fsck.
```

Set alert on the file system.

```
Storage> fs alert set numinodes 2M fs2
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to 2M on the file system
↪fs2
```

Unset the alert on the file system.

```
Storage> fs alert unset numinodes fs2
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to DEFAULT value on the
↪file system fs2
```

Set alert on a snapshot of the file system.

```
Storage> fs alert set numinodes 2M fs2 snap1
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to 2M on the file system
↪fs2 snapshot snap1
```

Unset the alert on a snapshot of the file system.

```
Storage> fs alert unset numinodes fs2 snap1
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to DEFAULT value on the␣
↪file system fs2 snapshot snap1
```

Set the default alert.

```
test_01.Storage> fs alert set numinodes 2M
ACCESS fs SUCCESS V-288-663 Default Alert on the file systems of type [ numinodes ]␣
↪set to 2M
```

Unset the default alert.

```
test_01.Storage> fs alert unset numinodes
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to default value 0
```

Show the alert status.

```
Storage> fs alert show

File System   Numspace(cur_usage/value)   Numinodes(cur_usage/value)   Fullspace(cur_
↪usage/value)
============  ==========================  ============================ ␣
↪============================
fs1           8% / 80% (D)                5 / 0 (D)                    8% / 0% (D)
fs2           6% / 85%                    5 / 1000                     6% / 20%
```

Grow file system's primary tier size to 1 G.

```
Storage> fs growto primary fs1 1g
```

Grow file system's primary tier size by 50 M.

```
Storage> fs growby primary fs1 50M
```

Shrink file system's primary tier by the specified size.

```
Storage> fs shrinkby primary fs1 10m
```

Shrink file system's primary tier to just 50 M.

```
Storage> fs shrinkto primary fs1 50M
```

View the list of file systems.

```
Storage> fs list
FS                        STATUS       SIZE    LAYOUT     MIRRORS    COLUMNS    USE% ␣
↪NFS SHARED  CIFS SHARED  SECONDARY TIER
========================= ======       ====    ======     =======    =======    ==== ␣
↪==========  ===========  ==============
fs1                       online    100.00M    simple         -          -          3%␣
↪    no          no           no
fs2                       online    100.00M    simple         -          -          3%␣
↪    no          no           no
fs3                       online    700.00M    simple         -          -          4%␣
↪    no          no           no
fs4                       online     69.00M    simple         -          -          4%␣
↪    no          no           no
```

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```
fs5                       online      1.94G    simple         -         -            1%␣
↪     no           no            no
```

Display detailed information for a specific file system.

```
Storage> fs list mir4
General Info:
===============
Block Size:       1024 Bytes
Version:          Version 8
Cluster5_01:        online

primary
=======
Size:            30.00G
Use%:            0%
Layout:          mirrored
Mirrors:         4
Columns:         -
Stripe Unit:     0.00 K
FastResync:      Enabled

1. Mirror 01:
List of pools:   pool1
List of disks:   disk1 disk2

2. Mirror 02:
List of pools:   pool1
List of disks:   disk3 disk4

3. Mirror 03:
List of pools:   pool1
List of disks:   disk5 disk6

4. Mirror 04:
List of pools:   pool1
List of disks:   disk7 disk8

Secondary
=========
Size:            20.00G
Use%:            0%
Layout:          mirrored
Mirrors:         2
Columns:         -
Stripe Unit:     0.00 K
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   disk9 disk10

2. Mirror 02:
List of pools:   pool1
List of disks:   disk11 disk12

FS Type:           Normal
```

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```
Defrag Status: Not Running
Fullfsck Status: Not Running
Resync Status:
    Tier 1, Mirror 03: 7.67%     Start_time: Jun/05/2011/15:10:26   Work_time: 0:1:14␣
↪    Remaining_time: 14:50
    Tier 1, Mirror 04: 1.08%     Start_time: Jun/05/2011/13:08:07   Work_time: 0:1:21␣
↪    Remaining_time: 2:03:33
    Tier 2, Mirror 02: 11.27%    Start_time: Jun/05/2011/14:03:14   Work_time: 0:0:18␣
↪    Remaining_time: 02:21
Rollsync Status:
    Rollsync  mir4_roll, Tier 1: 1.28%  Start_time: Jun/05/2011/14:51:40   Work_time:␣
↪0:0:12     Remaining_time: 15:23
Relayout Status: Not Running
```

Disable FastResync for a primary tier of a file system.

```
Storage> fs unsetfastresync primary fs6
```

Try disabling FastResync for a primary tier of a file system where it is already in the disabled state.

```
Storage> fs unsetfastresync primary fs6
ACCESS fs ERROR V-288-655 Fastresync is not enabled for fs6.
```

Enable FastResync for a primary tier of a file system.

```
Storage> fs setfastresync primary fs6
```

Try enabling FastResync for a primary tier of a file system where it is already in the enabled state.

```
Storage> fs setfastresync primary fs6
ACCESS fs ERROR V-288-651 File system fs6 is already fastresync enabled.
```

Destroy a file system.

```
Storage> fs destroy fs6
100% [#] Destroy filesystem
FS ============
fs1
```

Reclaim thin storage under a file system.

```
Storage> fs reclaim fs6
Reclaimed thin storage under file system fs6
```

Display WWN information for a particular node

```
Storage> hba democluster_01
Node            Host Initiator HBA WWNs
====            ======================
democluster_01      21:00:00:1b:32:1e:5c:ba, 21:01:00:1b:32:3e:5c:ba
```

Display WWN information for all the running nodes in the cluster

```
Storage> hba
Node            Host Initiator HBA WWNs
```

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```
====            ======================
democluster_01      21:00:00:1b:32:1e:5c:ba, 21:01:00:1b:32:3e:5c:ba
democluster_02      21:00:00:e0:8b:92:53:d7, 21:01:00:e0:8b:b2:53:d7
```

Create a pool `pool1` with disks `Disk_0`, `Disk_1`.

```
Storage> pool create pool1 Disk_0,Disk_1 isolated=yes
ACCESS pool Success V-288-1015 Pool pool1 created successfully.
100% [#] Creating pool pool1
```

View the list of pools.

```
Storage> pool list
Pool  Pool Type  List of disks
=====  ========  ==============
pool1  Isolated  Disk_0 Disk_1
pool2  Normal    Disk_2 Disk_5
```

Destroy pool `pool1`.

```
Storage> pool destroy pool1
ACCESS pool SUCCESS V-288-2056 successfully destroyed the pool.
```

Remove disks from a pool.

```
Storage> pool rmdisk Disk_2
ACCESS pool Success V-288-1360 Disk(s) Disk_2 have been removed successfully.
```

Add disk `Disk_2` to pool `pool2`.

```
Storage> pool adddisk pool2 Disk_2
ACCESS pool Success V-288-1001 Disk(s) Disk_2 are added to pool2 successfully.
```

Rename `pool1` to `p01`.

```
Storage> pool rename pool1 p01
ACCESS pool Success V-288-1017 Pool rename successful.
```

Move disk `Disk_0` from pool `p01` to pool `pool2`.

```
Storage> pool mvdisk p01 pool2 Disk_0
ACCESS pool Success V-288-1002 Disk(s) moved successfully.
```

View the free space in each of the pools.

```
Storage> pool free
Pool                                    Free Space     Total Space    Use%
================================        ==========     ===========    ====
p01                                     989.64M         989.64M        0%
pool2                                   2.90G           2.90G          0%
```

View the free space in `pool2`.

```
Storage> pool free pool2
Disk             Free Space     Total Space    Use%
====             ==========     ===========    ====
```

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```
Disk_0          989.64M         989.64M          0%
Disk_2          991.69M         991.69M          0%
Disk_5          991.69M         991.69M          0%
```

Mark disk Disk_2 in `pool2` as spare disk.

```
Storage> pool markdiskspare pool_name disk1[,disk2,...]
Storage> pool markdiskspare pool2 Disk_2
ACCESS Pool SUCCESS V-288-1360 Disk(s) Disk_2 have been marked as spared disks␣
↪successfully.
```

Remove spare disk flag on Disk_2 in `pool2`.

```
Storage> pool removediskspare pool_name disk1[,disk2,...]
Storage> pool removediskspare pool2 Disk_2
ACCESS Pool SUCCESS V-288-0 Disk(s) Disk_2 have been removed as spared disks␣
↪successfully.
```

Scan SCSI bus for newly added disks.

```
Storage> scanbus
100% [#] Scanning the bus for disks
```

Create a snapshot of a file system.

```
Storage> snapshot create snapshot1 fs1
100% [#] Create snapshot
```

Set WORM on snapshot.

```
Storage> snapshot worm set snapshot1 fs1
100% [#] Snapshot worm set
ACCESS snapshot SUCCESS V-493-10-0 WORM is set on snapshot snapshot1.
```

Set 1 day retention period on worm enabled snapshot.

```
Storage> snapshot retention set snapshot1 fs1 1D
100% [#] Snapshot retention set
ACCESS snapshot SUCCESS V-493-10-0 Retention period is set on snapshot snapshot1.
```

Create a WORM snapshot with 1 day retention period,

```
Storage> snapshot create snapshot2 fs1 removable=yes worm=yes 1D
100% [#] Create snapshot
```

Restore a file system by a given snapshot.

```
Storage> snapshot restore fs0 snap00
```

Destroy a snapshot of an existing file system.

```
Storage> snapshot destroy snap1 fs1
100% [#] Destroy snapshot
```

View the list of snapshots.

```
Storage> snapshot list
Snapshot                                FS       Status     ctime                   ␣
↪mtime                  Removable  Preserved  WORM  Retention Period
=======                                 ===      ======     =====                   ␣
↪=====                  =========  =========  ====  ===================
snap2                                   fs1      offline    02:40:43.27.Jul.2009    ␣
↪02:40:57.27.Jul.2009   no         no         no    -
snapshot1                               fs1      offline    03:35:11.30.Aug.2021    ␣
↪03:35:11.30.Aug.2021   yes        no         yes   01:00:00.31.Aug.2021
snapshot2                               fs1      offline    03:35:11.31.Aug.2021    ␣
↪03:35:11.31.Aug.2021   yes        no         yes   01:00:00.01.Sep.2021
sc1_24_Jul_2009_21_34_01_IST            fs1      offline    21:34:03.24.Jul.2009    ␣
↪21:34:03.24.Jul.2009   yes        no         no    -
sc1_24_Jul_2009_19_34_02_IST            fs1      offline    19:34:04.24.Jul.2009    ␣
↪19:34:04.24.Jul.2009   yes        no         no    -
presnap_sc1_24_Jul_2009_18_34_02_IST    fs1      offline    18:34:04.24.Jul.2009    ␣
↪18:34:04.24.Jul.2009   yes        yes        no    -
sc1_24_Jul_2009_17_34_02_IST            fs1      offline    17:34:04.24.Jul.2009    ␣
↪17:34:04.24.Jul.2009   yes        no         no    -
```

Display the list of snapshots for a given file system.

```
Storage> snapshot list fs2
Snapshot                            Schedule Name   Status    ctime                   ␣
↪mtime                Removable  Preserved  WORM   Retention Period
======                              =============   ======    =====                   ␣
↪=====                =========  =========  ====   ================
snap2                                    -          offline   02:40:43.27.Jul.2009    ␣
↪02:40:57.27.Jul.2009  yes       no         no     -
sc1_24_Jul_2009_22_34_02_IST             sc1        offline   22:34:09.24.Jul.2009    ␣
↪22:34:09.24.Jul.2009  yes       no         no     -
sc1_24_Jul_2009_21_34_01_IST             sc1        offline   21:34:03.24.Jul.2009    ␣
↪21:34:03.24.Jul.2009  yes       no         no     -
sc1_24_Jul_2009_19_34_02_IST             sc1        offline   19:34:04.24.Jul.2009    ␣
↪19:34:04.24.Jul.2009  yes       no         no     -
presnap_sc1_24_Jul_2009_18_34_02_IST     -          offline   18:34:04.24.Jul.2009    ␣
↪18:34:04.24.Jul.2009  yes       yes        no     -
sc1_24_Jul_2009_17_34_02_IST             sc1        offline   17:34:04.24.Jul.2009    ␣
↪17:34:04.24.Jul.2009  yes       no         no     -
```

Display the list of snapshots corresponding to a file system and schedule name.

```
Storage> snapshot list fs1 sc1
Snapshot                                 Status     ctime                     mtime  ␣
↪                    Removable  WORM   Retention Period
===============================          ======     =====                     =====  ␣
↪                    =========  ====   ================
sc1_24_Jul_2009_22_34_02_IST             offline    22:34:09.24.Jul.2009    ␣
↪22:34:09.24.Jul.2009      yes         no    -
sc1_24_Jul_2009_21_34_01_IST             offline    21:34:03.24.Jul.2009    ␣
↪21:34:03.24.Jul.2009      yes         no    -
sc1_24_Jul_2009_20_34_02_IST             offline    20:34:04.24.Jul.2009    ␣
↪20:34:04.24.Jul.2009      yes         no    -
sc1_24_Jul_2009_19_34_02_IST             offline    19:34:04.24.Jul.2009    ␣
↪19:34:04.24.Jul.2009      yes         no    -
sc1_24_Jul_2009_18_34_02_IST             offline    18:34:04.24.Jul.2009    ␣
↪18:34:04.24.Jul.2009      yes         no    -
```

Make a snapshot offline.

```
Storage> snapshot offline snapshot1 fs1
100% [#] Offline snapshot
```

Make a snapshot online with read-write mode.

```
Storage> snapshot online snap2 fs1 mode=read-write
100% [#] Online snapshot
```

Enable the snapshot quota of a file system.

```
Storage> snapshot quota on fs1
Storage> snapshot quota on fs1 1M
```

Disable the snapshot quota of a file system.

```
Storage> snapshot quota off fs2
Storage> snapshot quota off fs3
Storage> snapshot quota off fs4
Storage> snapshot quota off fs5
```

Display the list of snapshot quotas of all the file systems.

```
Storage> snapshot quota list
FS                                Quota      Capacity Limit
================================= =====      ==============
fs1                               on              1M
fs2                               off              0
fs3                               off              0
fs4                               off              0
fs5                               off              0
```

Create a schedule for automated snapshot creation of a given file system every 3 hours on a daily basis and the maximum removing snapshots is 3.

```
Storage> snapshot schedule create schedule1 fs1 30 * 3 * * * 3
```

Modify the existing schedule so that the snapshot is created every 2 hours on the first day of the week and only 20 snapshots can be created for a given schedule.

```
Storage> snapshot schedule modify schedule1 fs1 20 * 2 * * 1
```

Destroy all automated snapshots created under a given schedule and file system.

```
Storage> snapshot schedule destroyall schedule1 fs1
```

Preserve a snapshot created according to a given schedule and file system name.

```
Storage> snapshot schedule preserve schedule1 fs1 schedule1_Feb_27_16_42_00_IST
```

Create a schedule for automated snapshot creation of a given file system every 3 hours on a daily basis and the maximum removing snapshots is 3 and set worm as no.

```
Storage> snapshot schedule create schedule2 fs2 30 * 3 * * * 3 worm=no
```

Modify the existing schedule so that WORM-enabled snapshot is created with retention period as 1 day

```
Storage> snapshot schedule modify schedule2 fs2 30 * 3 * * * 3 worm=yes 1D
```

List all schedules created for automated snapshot creation corresponding to an existing file system.

```
Storage> snapshot schedule show fs2
FS     Schedule Name    Max Snapshot  Minute  Hour  Day  Month  WeekDay  Max Snapshot␣
↪Removals  WORM  Retention Period
====  ==============  ============  ======  ====  ===  =====  =======  ␣
↪====================  ====  ================
fs2    sched2           20            */25    *     *    *      *        2              ␣
↪         no    0
fs2    sched3           20            */45    *     *    *      *        2              ␣
↪         no    0
fs2    schedule2        30            *       3     *    *      *        3              ␣
↪         yes   1D
```

List automated snapshot schedules for all the file systems.

```
Storage> snapshot schedule show
FS     Schedule Name  Max Snapshot  Minute  Hour  Day  Month  WeekDay  Max Snapshot␣
↪Removals  WORM  Retention Period
====  =============  ============  ======  ====  ===  =====  =======  ␣
↪====================  ====  ================
fs1    sched1         10            */50    *     *    *      *        2              ␣
↪        no    0
fs2    sched1         10            */45    *     *    *      *        2              ␣
↪        no    0
fs2    schedule2      30            *       3     *    *      *        3              ␣
↪        yes   1D
```

Delete all schedules created for automated snapshot creation / removal corresponding to an existing file system.

```
Storage> snapshot schedule delete fs1
```

Create a mirrored file system with name `fs1` with disks from the pools `pool1` and `pool2`. Add a mirrored tier to this file system.

```
Storage> fs create mirrored fs1 100M 2 pool1,pool2
100% [#] Creating mirrored filesystem
Storage> tier add mirrored tier1 fs1 100M 2 pool3,pool4
100% [#] Creating mirrored tier of filesystem
```

Create a simple file system on encrypted volume

```
Storage> fs create simple fs4 1g pool1 blksize=2048 pdir_enable=no encrypt=on
100% [#] Creating simple filesystem
ACCESS fs SUCCESS V-288-0 Created simple file system fs4
```

Display detailed information for a specific file system

```
Storage> fs list fs4
General Info:
===============
Block Size:         2048 Bytes
Version:            Version 11
Volume Encrypted:   Yes
ISA_01:         online
```

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```
ISA_02:        online

primary
=======
Size:            1.00G
Use%:            5%
Layout:          simple
Mirrors:         -
Columns:         -
Stripe Unit:     0.00 K
Meta Data:       metaOk
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   isa_01_intel_nvme2_0

FS Type:           Normal

Defrag Status: Not Running
Fullfsck Status: Not Running
Resync   Status: Not Running
Rollsync Status: Not Running
Relayout Status: Not Running

WORM Enabled: No
```

Create a simple WORM enabled file system

```
Storage> fs create simple fs1 1g pool1 blksize=2048 pdir_enable=no encrypt=off␣
↪worm=yes
100% [#] Creating simple filesystem
ACCESS fs SUCCESS V-288-0 Created simple file system fs1
```

Display detailed information for a specific file system

```
Storage> fs list fs1
General Info:
===============
Block Size:        2048 Bytes
Version:           Version 13
Volume Encrypted:  No
Max IOPS:  0
ISA_01:        online
ISA_02:        online

primary
=======
Size:            1.00G
Use%:            5%
Layout:          simple
Mirrors:         -
Columns:         -
Stripe Unit:     0.00 K
Meta Data:       metaOk
FastResync:      Disabled
```

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```
1. Mirror 01:
List of pools:   pool1
List of disks:   isa_01_intel_nvme2_0

FS Type:           Normal

Defrag Status: Not Running
Fullfsck Status: Not Running
Resync   Status: Not Running
Rollsync Status: Not Running
Relayout Status: Not Running

WORM Enabled: Yes
```

Add a new AWS service with name *amzservice*:

```
Storage> cloud addservice amzservice service_provider=AWS
Access_Key: ZTVhY2E3M2JlYWQyNWFk
Secret_Key:
ACCESS storage INFO V-493-10-4 Successfully added new cloud service.
```

Add an S3-compatible cloud service provider with name *isaobj*:

```
Storage> cloud addservice isaobj service_provider=S3_COMPATIBLE
REST Endpoint: https://s3.isaobj:8143
Access_Key: ZTVhY2E3M2JlYWQyNWFk
Secret_Key:
Signature_Version:
ACCESS storage INFO V-493-10-4 Successfully added new cloud service.
```

Add the cloud storage of the Amazon S3 service named *awstest* in the region of *California* as the cloud tier named *cloudtier* for the file system *fs1* and provide the interface as *eth4*.

```
Storage> tier add cloud s3 fs1 cloudtier awstest California eth4
ACCESS tier SUCCESS V-493-10-2041 Tier cloudtier is added for fs1
```

List the tiers for filesystem fs1

```
Storage> tier list fs1
TIER NAME            TIER TYPE       REGION          CLOUD SERVICE        INTERFACE
==================== =============== =============== ==================== ==========
primary              DISK            -               -                    -
cloudtier            CLOUD(S3)       us-west-1       awstest              eth4
```

Add S3-compatible cloud storage, named s3comptest, as the cloud tier va01 for the file system fs1.

```
Storage> tier add cloud s3-compatible fs1 va01 s3comptest
ACCESS tier SUCCESS V-493-10-2041 Tier va01 is added for fs1
```

List all the configured cloud services.

```
Storage> cloud listservice
Service     Provider        Access Key     REST Endpoint         Storage Account
↪ProjectID   Signature Version
==========  =========       ============   ====================  ================
↪==========  ==================
```

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```
amzservice  AWS             AKIA----B4WA   -                      -                 - ␣
↪           -
isaobj      S3_COMPATIBLE   ZTVh----NWFk   https://s3.isaA:8143   -                 - ␣
↪           4
```

Remove an existing cloud service named *amzservice*:

```
Storage> cloud removeservice amzservice
```

Remove an existing cloud service named *isaobj*:

```
Storage> cloud removeservice isaobj
```

Show list of files on the primary tier of file system fs1.

```
Storage> tier listfiles fs1 primary
/.placement_policy.xml
/lost+found/changelog
```

Show list of files on the secondary tier of file system fs1.

```
Storage> tier listfiles fs1 secondary
```

Remove the cloud tier cloudtier from file system fs1.

```
Storage> tier remove fs1 cloudtier
ACCESS tier SUCCESS V-288-0 Tier cloudtier is removed
```

Show the usage of the cloud tier cloudtier.

```
Storage> tier stats usage fs1 cloudtier
Storage Utilized     223.1GB
Number of objects    488
Number of files      231
```

Create a data movement policy policy1 for file system fs1 to move the files with file name extension of .txt that were not accessed or modified within the last 2 days from the primary (disk tier) to tier1 (cloud tier).

```
Storage> fs policy add operation=move policy1 fs1 primary tier1 retrieval_
↪option=Standard \*.txt atime >2d mtime >2d
ACCESS policy SUCCESS V-288-0 Policy policy1 for fs fs1 added successfully.
```

Create a data deletion policy policy2 for file system fs1 to delete the files with file name extension of .txt that were not accessed or modified within the last 2 days from tier1 (cloud tier).

```
Storage> fs policy add operation=delete policy2 fs1 tier1 \*.txt atime >2d mtime >2d
ACCESS policy SUCCESS V-288-0 Policy policy2 for fs fs1 added successfully.
```

Modify data movement policy policy1 for file system fs1 to move the files with file name extension of .doc that were not accessed or modified within the last 3 days.

```
Storage> fs policy modify policy1 \*.doc atime >3d mtime >3d
ACCESS policy SUCCESS V-288-0 Policy policy1 modified successfully.
```

List all policies.

```
Storage> fs policy list
Name     FS name   Action   Source Tier      Destination Tier   Retrieval Option
↪Pattern       Atime   Mtime   State
=======  ========  =======  ===============  =================  =================
↪============  ======  ======  ===========
policy2  fs1       delete   tier1            -                  Standard           \*.
↪txt         >2d     >2d     not running
policy1  fs1       move     primary          tier1              Standard           \*.
↪doc         >3d     >3d     not running
```

List all policies set for file system fs1.

```
Storage> fs policy list fs1
Name     FS name   Action   Source Tier      Destination Tier   Retrieval Option
↪Pattern       Atime   Mtime   State
=======  ========  =======  ===============  =================  =================
↪============  ======  ======  ===========
policy2  fs1       delete   tier1            -                  Standard           \*.
↪txt         >2d     >2d     not running
policy1  fs1       move     primary          tier1              Standard           \*.
↪doc         >3d     >3d     not running
```

Delete policy policy1 set for file system fs1.

```
Storage> fs policy delete policy1 fs1
ACCESS policy SUCCESS V-288-0 Policy policy1 for fs fs1 deleted successfully.
```

Rename policy2 to policy3.

```
Storage> fs policy rename policy2 policy3
ACCESS policy SUCCESS V-288-0 Policy policy2 renamed to policy3.
```

Show the status of policy run for the policy *Policy1*.

```
Storage> fs policy status Policy1
Policy Name:                    Policy1
================================================
Policy Run Type:                normal
Policy Run Status:              running
Total Data (Files):             93.1 GB (100000)
Moved/Deleted Data (Files):     47.7 MB (879)
```

Abort the currently running policy *Policy1*.

```
Storage> fs policy abort Policy1
ACCESS policy INFO V-288-0 Policy Policy1 aborted successfully.
```

Start a dry run of the policy *Policy1*.

```
Storage> fs policy dryrun Policy1
ACCESS policy INFO V-288-0 Policy Policy1 dryrun started in background, please
check 'fs policy status' for progress.
```

Pause the currently running policy *Policy1*.

```
Storage> fs policy pause Policy1
ACCESS policy INFO V-288-0 Policy Policy1 paused successfully.
```

Run the currently paused policy *Policy1*.

```
Storage> fs policy run Policy1
Policy Policy1 is not running currently, as it was killed/paused. Would you like to␣
↪start new run (y/n): y
ACCESS policy INFO V-288-0 Policy Policy1 run started in background, please check 'fs␣
↪policy status' for progress.
```

Resume the currently paused policy *Policy1*.

```
Storage> fs policy resume Policy1
ACCESS policy INFO V-288-0 Policy Policy1 resume started in background, please check
↪'fs policy status' for progress.
```

Create the schedule for the file system *lfs1*. The schedule runs every 10 minutes.

```
Storage> fs policy schedule create lfs1 */10 * * * *
ACCESS policy_schedule SUCCESS V-288-0 Schedule create for file system lfs1 done␣
↪successfully.
```

Modify the schedule of the file system *lfs1*. The schedule runs every 20 minutes.

```
Storage> fs policy schedule modify lfs1 */20 * * * *
ACCESS policy_schedule SUCCESS V-288-0 Schedule modify for file system lfs1 done␣
↪successfully.
```

List the schedule of the file system *lfs1*.

```
Storage> fs policy schedule list lfs1
File System Name   Minute   Hour   Day of Month   Month   Day of Week
================   =======  =====  =============  ======  ============
lfs1               20       *      *              *       *
```

Remove the schedule of the file system *lfs1*.

```
Storage> fs policy schedule remove lfs1
ACCESS policy_schedule SUCCESS V-288-0 Schedule for file system lfs1 removed␣
↪successfully.
```

Set the retention on the file */vx/myfs/file1 5y*.

```
Storage> storage fs retention set /vx/myfs/file1 5y
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file1 05-20-2020*.

```
Storage> storage fs retention set /vx/myfs/file1 05-20-2020
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file1 05-20-2020:13:45:29*.

```
Storage> storage fs retention set /vx/myfs/file1 05-20-2020:13:45:29
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file 1 5y*.

```
Storage> storage fs retention set "/vx/myfs/file 1" 5y
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file 1
```

Unset retention on the file */vx/myfs/file1*.

```
Storage> storage fs retention set /vx/myfs/file1 0
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the directory */vx/myfs/dir1 2y*.

```
Storage> storage fs retention set /vx/myfs/dir1 2y
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Set the retention on the directory */vx/myfs/dir1 05-20-2020*.

```
Storage> storage fs retention set /vx/myfs/dir1 05-20-2020
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Set the retention on the directory */vx/myfs/dir1 05-20-2020:20:17:12*.

```
Storage> storage fs retention set /vx/myfs/dir1 05-20-2020:20:17:12
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Unset retention on the directory */vx/myfs/dir1*.

```
Storage> storage fs retention set /vx/myfs/dir1 0
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Show the retention on the file */vx/myfs/file1*

```
Storage> storage fs retention show /vx/myfs/file1
ACCESS Retention SUCCESS V-288-0 Retention value on file /vx/myfs/file1 is 06-08-2022␣
↪23:12:51 GMT
```

Show the retention on the file */vx/myfs/file 1*

```
Storage> storage fs retention show "/vx/myfs/file 1"
ACCESS Retention SUCCESS V-288-0 Retention value on file /vx/myfs/file 1 is 06-08-
↪2022 23:12:51
```

Show the retention on the directory */vx/myfs/dir1*

```
Storage> storage fs retention show /vx/myfs/dir1
ACCESS Retention ERROR V-288-0 Specified path is directory path, please give file path
```

Enable WORM support for specified file system.

```
Storage> fs worm set fs1
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system.
```

Enable WORM support for specified file system with minimum retention as 1 day and maximum retention as 4 months.

```
Storage> fs worm set fs1 1D 4M
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

Enable WORM support for specified file system with minimum retention as 2 years.

```
Storage> fs worm set fs1 2Y vxdefault
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

Enable WORM support for specified file system with maximum retention as 3 months.

```
Storage> fs worm set fs1 vxdefault 3m
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

List WORM attributes for specified file system.

```
Storage> fs worm get fs1
WORM Enabled:   Yes
Min Retention:  86400s
Max Retention:  259200s
```

List the I/O tasks which are running in the background.

```
Storage> fs tasks
FILESYSTEM   TASK      STATE    PROGRESS
==========   ======    =======  =========
fs1          ATCOPY    RUNNING  03.01%
ec_fs1       ECREBUILD RUNNING  12.56%
```

Pause all the ongoing tasks for a given file system.

```
Storage> fs tasks pause fs1
ACCESS fs SUCCESS V-493-10-0 Successfully paused the task for fs1.

Storage> fs tasks
FILESYSTEM  TASK      STATE   PROGRESS
==========  ========  ======  ========
fs1         RELAYOUT  PAUSED  2.50%
```

Resume all the tasks which are in paused state for a given file system.

```
Storage> fs tasks resume fs1
ACCESS fs SUCCESS V-493-10-0 Successfully resumed the task for fs1.

Storage> fs tasks
FILESYSTEM  TASK      STATE   PROGRESS
==========  ========  ======  ========
fs1         RELAYOUT  RUNNING  5.60%
```

18.1.5 SEE ALSO

disk(1), hba(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), quota(1), maxiops(1)

18.2 cloud

18.2.1 SYNOPSIS

`cloud addservice` *service_name* service_provider=<service_provider>

`cloud listservice` [*service_name*]

`cloud removeservice` *service_name*

`cloud usage`

18.2.2 DESCRIPTION

The storage `cloud` commands manage cloud storage configuration operations. The commands can be used to add, list, and remove user cloud storage subscriptions to Veritas Access.

18.2.3 OPTIONS

service_provider=<service_provider> Specifies the cloud storage provider type. You can use Amazon Web Services (AWS) S3 or Glacier, AWS GovCloud(US), Azure, Google cloud, Veritas Access S3, or any S3-compatible cloud storage as the cloud service provider. If you are using an S3-compatible cloud provider, you need to specify the access key, secret key, and the REST endpoint to the *service_provider*. The REST endpoint is the URL where your S3 server accepts the incoming requests. You also have the option to specify the Signature Version for the S3-compatible cloud provider. The default is version 4 if the Signature Version is not specified.

`cloud addservice` ***service_name*** **service_provider=<service_provider>** Adds a public cloud subscription to Veritas Access as a cloud service with a name. The added subscription is accessed using *service_name* thereafter. You are prompted to provide the subscription credentials. To successfully send requests using AWS, you need to have a valid set of security credentials called access keys. You need to provide the access key and secret key as inputs. Credentials are verified and the service is added.

`cloud listservice` **[*service_name*]** List added cloud services. If *service_name* is provided, then only that service is listed. Otherwise all configured services are listed.

`cloud removeservice` ***service_name*** Remove the service *service_name*.

`cloud usage` Display vendor specific cloud usage.

Warning: Service removal fails if there are active cloud tiers associated with this service at the time of removal.

18.2.4 EXAMPLES

Add a new AWS service with name *amzservice*:

```
Storage> cloud addservice amzservice service_provider=AWS
Access_Key: ZTVhY2E3M2JlYWQyNWFk
Secret_Key:
```

Add an S3-compatible cloud service provider with name *isaobj* with default v4 S3 Signature Version:

```
Storage> cloud addservice isaobj service_provider=S3_COMPATIBLE
REST Endpoint: https://s3.isaobj:8143
Access_Key: ZTVhY2E3M2JlYWQyNWFk
Secret_Key:
Signature_Version:
Successfully added new cloud service.
```

Add an S3-compatible cloud service provider with name *isaobj* with v2 S3 Signature Version:

```
Storage> cloud addservice isaobjv2 service_provider=S3_COMPATIBLE
REST Endpoint: https://s3.isaobj:8143
Access_Key: ZTVhY2E3M2JlYWQyNWFk
Secret_Key:
Signature_Version: 2
Successfully added new cloud service.
```

List all the configured cloud services.

```
Storage> cloud listservice
Service     Provider       Access Key    REST Endpoint          Storage Account
↪ProjectID   Signature Version
==========  =========      ============  ====================  ================
↪==========  =================
amzservice  AWS            AKIA----B4WA  -                     -                -
↪       -
isaobj      S3_COMPATIBLE  ZTVh----NWFk  https://s3.isaA:8143  -                -
↪       4
isaobjv2    S3_COMPATIBLE  ZTVh----NWFk  https://s3.isaA:8143  -                -
↪       2
```

Remove an existing cloud service named *amzservice*:

```
Storage> cloud removeservice amzservice
```

Remove an existing cloud service named *isaobj*:

```
Storage> cloud removeservice isaobj
```

Display vendor specific cloud usage:

```
Storage> cloud usage
CLOUD    Files  Objects  Size(Bytes)
=======  =====  =======  ===========
AZURE    1      2        100073472
AWS      3      3        24576
ALIBABA  0      0        0
GOOGLE   0      0        0
```

18.2.5 SEE ALSO

tier(1), fs(1), disk(1)

18.3 fencing

18.3.1 SYNOPSIS

`fencing destroy`

`fencing on disk` [*disk1*, *disk2*, *disk3*]

`fencing off`

`fencing replace` *src_disk* fIdest_disk

`fencing status`

18.3.2 DESCRIPTION

The storage `fencing` commands perform I/O fencing-related operations. These commands are not available in a single node set up.

18.3.3 OPTIONS

`fencing destroy` Destroy coordinator pool.

`fencing on disk` **[*disk1*, *disk2*, *disk3*]** Enable disk-based I/O fencing on the three disks.

`fencing off` Disable I/O fencing on all the nodes.

`fencing replace` ***src_disk dest_disk*** Replace an existing coordinator disk with another disk. If the disk being replaced is in a failed state, then it is mandatory to delete the disk from the array. This is required because if the failed disk comes up and works properly, it can lead to an even number of I/O fencing disks, and this affects the functionality.

`fencing status` Check the I/O fencing status.

18.3.4 EXAMPLES

Destroy coordinator pool.

```
Storage> fencing destroy
```

Enable disk-based I/O fencing on the disks `ams_wms0_000d`, `ams_wms0_000e`, `ams_wms0_000f` (only three disks required).

```
Storage> fencing on disk ams_wms0_000d,ams_wms0_000e,ams_wms0_000f
ACCESS fencing Success V-288-0 IO Fencing feature now Enabled with SCSI3 Persistent␣
↪Reservations
100% [#] Enabling fencing
```

Check I/O fencing status after enabling I/O fencing.

```
Storage> fencing status

IO Fencing Status
=================
Enabled
```

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```
Disk Name           Coord Flag On
==============      ==============
ams_wms0_000d       Yes
ams_wms0_000e       Yes
ams_wms0_000f       Yes
```

Disable I/O fencing on all the nodes.

```
Storage> fencing off
ACCESS fencing Success V-288-0 IO Fencing feature now Disabled
100% [#] Disabling fencing
```

Check I/O fencing status after disabling I/O fencing.

```
Storage> fencing status

IO Fencing Status
=================
Disabled

Disk Name           Coord Flag On
==============      ==============
ams_wms0_000d       Yes
ams_wms0_000e       Yes
ams_wms0_000f       Yes
```

Replace ams_wms0_000f with ams_wms0_000c with fencing in Enabled mode.

```
Storage> fencing replace ams_wms0_000f ams_wms0_000c
ACCESS fencing Success V-288-0 Replaced disk ams_wms0_000f with ams_wms0_000c␣
↪successfully.
100% [#] Replacing disk ams_wms0_000f with ams_wms0_000c
```

Replace ams_wms0_000f with ams_wms0_000c with fencing in Disabled mode.

```
Storage> fencing replace ams_wms0_000f ams_wms0_000c
ACCESS fencing Success V-288-0 Replaced disk ams_wms0_000f with ams_wms0_000c␣
↪successfully. Please run fencing on.
100% [#] Replacing disk ams_wms0_000f with ams_wms0_000c
```

Check I/O fencing status after I/O fencing replace operation completed.

```
Storage> fencing status

IO Fencing Status
=================
Disabled

Disk Name           Coord Flag On
==============      ==============
ams_wms0_000c       Yes
ams_wms0_000d       Yes
ams_wms0_000e       Yes
```

18.3.5 SEE ALSO

disk(1), hba(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), quota(1)

18.4 disk

18.4.1 SYNOPSIS

`disk list` [stats | detail | paths]

`disk replace` *src_disk dest_disk* [*allow_healthy_src*] [*replace_force*]

The disks may be direct-attached storage or shared storage devices. The format command enables network sharing of local disks, cluster wide. Also to grow a selected disk, if it is resized on the storage array. With format command, you can format the disk to "simple" format, if the disk does not belong to any disk groups.

18.4.2 DESCRIPTION

The `disk list` command displays aggregated information of all the disk devices connected to any or all of the nodes in the cluster.

The `disk list stats` command displays a list of disks and nodes in a tabular form. Each row corresponds to a disk, and each column corresponds to a node. An "OK" in the table indicates that the disk that corresponds to that row is accessible by the node that corresponds to that column. An "ERR" indicates that the disk that corresponds to that row is inaccessible by the node that corresponds to that column. A "NOT_CONN" indicates that the disk that corresponds to that row is not connected to the node that corresponds to that column.

The `disk list detail` command displays a list of disks and their properties. The column `ID` in `disk list detail` consists of: `VendorID`, `ProductID`, `TargetID`, and `LunID`. A ":" separates these fields.

If a disk is shared across multiple nodes and has name inconsistencies across the nodes, then that disk is shown as "—".

The `disk list paths` command shows the list of multiple paths of disks connected to all or any of the nodes in the cluster. It also shows the status of those paths on each node in the cluster.

The `disk replace` command replaces the specified source disk with the destination disk in the cluster. This command is helpful in cases when the source disk is faulted and the data in the faulted disk needs to be recovered on the destination disk. The `allow_healthy_src` option is used when a healthy source disk is to be replaced by the destination disk. For disk replacement, both the source and destination disks should be part of the same pool and the destination disk should also belong to the same node as the source disk. If the destination disk contains some data, you can use the `replace_force` option.

18.4.3 EXAMPLES

Display the list of disks in tabular form.

```
Storage> disk list stats
Disk             nasgw9_2   nasgw9_1   nasgw9_3   nasgw9_4   nasgw9_5   nasgw9_6
====             ======     ======     ======     ======     ======     ======
AMS_WMS0_0       OK         OK         OK         OK         OK         OK
AMS_WMS0_1       OK         OK         OK         OK         OK         OK
DS4800-0_0       OK         OK         OK         OK         OK         OK
DS4800-0_1       OK         OK         OK         OK         OK         OK
nasgw9_1_Disk_0  NOT_CONN   OK         NOT_CONN   NOT_CONN   NOT_CONN   NOT_CONN
nasgw9_1_Disk_1  OK         OK         OK         OK         OK         OK
EMC_CLARiiON0_0  OK         OK         OK         OK         OK         OK
EMC_CLARiiON0_1  OK         OK         OK         OK         OK         OK
```

Display the list of disks and their properties.

```
Storage> disk list detail
Disk            Pool              Enclosure    Array Type    Size (Use%)    Transport  ID
↪                    Serial Number
====            ===============   ==========   ===========   ===========    ==========
↪==================  =============
ams_wms0_10     *coordinator*     ams_wms0     A/A           1.00G 0.0%      FC
↪HITACHI:DF600F:4:1  71011588000A
ams_wms0_11     *coordinator*     ams_wms0     A/A           1.00G 0.0%      FC
↪HITACHI:DF600F:4:2  71011588000B
ams_wms0_12     p03               ams_wms0     A/A           1.00G 27.5%     FC
↪HITACHI:DF600F:4:3  71011588000C
ams_wms0_13     p03               ams_wms0     A/A           1.00G 18.8%     FC
↪HITACHI:DF600F:4:4  71011588000D
ams_wms0_14     p04               ams_wms0     A/A           1.00G 17.8%     FC
↪HITACHI:DF600F:4:5  71011588000E
```

Show the list of multiple paths of disks connected to all or any of the nodes in the cluster. Also show the status of those paths on each node in the cluster.

```
Storage> disk list paths
Disk               Paths    nasgw78_2                nasgw78_1
====               =====    ========                 ========
AMS_WMS0_0         Path 1   primary,enabled,active   primary,enabled,active
AMS_WMS0_1         Path 1   primary,enabled,active   primary,enabled,active
Disk_0             Path 1   enabled,active           enabled,active
nasgw78_2_Disk_0   Path 1   enabled,active           -
nasgw78_1_Disk_0   Path 1   -                        enabled,active
```

Add local disks having the specified vendor ID and product ID in the JBOD category. Before executing the command, note the ID.

```
Storage> disk list detail
Disk              Pool    Enclosure    Array Type    Size (Use%)    Transport    ID
↪
↪Serial Number
===============   =====   ==========   ===========   ============   ==========
↪=============================================================================
↪ ================================
vassd_01_disk_0   -       disk         Disk          558.4G 0.0%    SCSI         DELL%5FPERC
↪%20H710%5FDISKS%5F6C81F660E7883400204FABF20704390E

Storage> disk configure local vassd_01 DELL PERC#H710 18/131/6/16
Please make sure that all disks from the given array are not in use.
Continue? (y/n, default:n): y
ACCESS Disk SUCCESS V-288-0 Configured local disks on the node vassd_01 successfully.
```

After the command is executed, the ID changes. Disk name may also change as a consequence.

```
Storage> disk list detail
Disk              Pool    Enclosure    Array Type    Size (Use%)    Transport    ID
↪
↪              Serial Number
===============   =====   ==========   ===========   ============   ==========
↪=============================================================================
↪ ================================
vassd_01_disk_2   -       disk         Disk          558.4G 0.0%    SCSI         DELL%5FPERC
↪%20H710%5FDISKS%5F00106C81F660E7883400204FABF20704%5F%7B0ba66790-021b-11e7-a802-
↪80c008319b08%7D   00106C81F660E7883400204FABF20704
```

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```
Storage> disk configure local all DELL PERC#H710
Please make sure that all disks from the given array are not in use.
Continue? (y/n, default:n): y
ACCESS Disk SUCCESS V-288-0 Configured local disks on all the nodes successfully.
```

Replace a source disk in a cluster with a destination disk.

```
1) Replace a faulted source disk in a cluster with a destination disk.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2

2) Replace a healthy source disk in a cluster with a destination disk.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3 allow_healthy_
↪src=Yes
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2

3) Replace a healthy source disk in a cluster with a destination disk which contains␣
↪some data.
Storage> disk replace thinkpad_0001_vmdk0_2 thinkpad_0001_vmdk0_3 allow_healthy_
↪src=Yes replace_force=Yes
ACCESS Disk INFO V-493-10-0 Successfully triggered replacement for source disk␣
↪thinkpad_0001_vmdk0_2
```

18.4.4 SEE ALSO

hba(1), fencing(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), quota(1)

18.5 fs

18.5.1 SYNOPSIS

`fs create simple` *fs_name size pool1* [, *disk1*,...] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

`fs create mirrored` *fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool]
[blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]
[vol_mediatype={hdd|ssd|vxdefault}] [multi_volume={yes|no|vxdefault}]

`fs create striped` *fs_name size ncolumns pool1* [, *disk1*,...]
[stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

`fs create mirrored-stripe` *fs_name size nmirrors ncolumns pool1*
[, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}]
[encrypt={on|off}] [worm={yes|no}]

`fs create striped-mirror` *fs_name size nmirrors ncolumns pool1*
[, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}]
[encrypt={on|off}] [worm={yes|no}] [vol_mediatype={hdd|ssd|vxdefault}]
[multi_volume={yes|no|vxdefault}]

`fs defrag now` *fs_name time*

`fs destroy` *fs_name*

`fs reclaim` *fs_name*

`fs list` [*fs_name*]

`fs online` *fs_name*

`fs offline` *fs_name*

`fs growto` *tier_name fs_name new_length* [*pool1* [, *disk1*,... [protection=disk|pool] [balanced=yes|no] [num_vols]

`fs growby` *tier_name fs_name length_change* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vols]

`fs shrinkto` *tier_name fs_name new_length* [balanced=yes|no]

`fs shrinkby` *tier_name fs_name length_change* [balanced=yes|no]

`fs addmirror` *tier_name fs_name pool1* [, *disk1*,...] [protection=disk|pool]

`fs rmmirror` *tier_name fs_name [pool_or_disk_name]*

`fs addcolumn` *tier_name fs_name ncolumns pool_or_disk_name*

`fs rmcolumn` *tier_name fs_name*

`fs checkmirror`

`fs resync` [*fs_name*]

fs checkresync

fs setfastresync *tier_name fs_name [pool_or_disk_name]*

fs unsetfastresync *tier_name fs_name*

fs fsck *fs_name* [*mode=quick*|*mode=full*]

fs alert set numinodes|numspace|fullspace value [*fs_name*,...] [*snapshot_name*]

fs alert unset numinodes|numspace|fullspace [*fs_name*,...] [*snapshot_name*]

fs alert show

fs upgrade *fs_name*

fs defrag schedule create *sched_name duration minute [hour] [day] [month] [day_of_week] [node]*

fs defrag schedule remove *sched_name*

fs defrag schedule show *[sched_name]*

fs defrag schedule start *fs_name sched_name*

fs defrag schedule stop *fs_name*

fs defrag schedule list *fs_name*

fs policy add operation=move *policy_name fs_name from_tier to_tier*
retrieval_option=Expedited|*Standard*|*Bulk pattern* [atime *condition*] [mtime *condition*]

fs policy add operation=delete *policy_name fs_name from_tier*
pattern [atime *condition*] [mtime *condition*]

fs policy modify *policy_name pattern* [atime *condition*] [mtime *condition*]

fs policy delete *policy_name fs_name*

fs policy rename *old_policy_name new_policy_name*

fs policy list *[fs_name]*

fs policy run *policy_name*

fs policy dryrun *policy_name*

fs policy status *policy_name*

fs policy abort *policy_name*

fs policy pause *policy_name*

fs policy resume *policy_name*

fs policy schedule create *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

fs policy schedule modify *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

fs policy schedule remove *fs_name*

fs policy schedule list *fs_name*

fs retention set *path rtime*

fs retention show *path*

`fs worm set` *fs_name* [minret] [maxret]

`fs worm get` *fs_name*

`fs setmaxiops` [*fs_name*] *maxiops*

`fs maxiopslist` [*fs_name*]

`fs iopsstat list` [*fs_name*]

`fs iopsstat reset` [*fs_name*]

`fs tasks`

`fs tasks pause` *fs_name*

`fs tasks resume` *fs_name*

18.5.2 DESCRIPTION

The storage `fs` commands manage file system operations.

File systems consist of metadata and file data. Metadata consists of information like last modification time, creation time, permissions, and so on. The total amount of space taken by the metadata depends upon the number of files. A file system that contains many small files requires more space to store the metadata, and a file system with fewer large files requires less space for storing the metadata.

When a file system is created, some space is set aside initially for the metadata. This space is generally proportional to the size of the file system. This is the reason for the non-zero usage percentage in the output of `fs list` just after the creation of the file system. The space set aside for the metadata grows or shrinks as and when required. A file system on a 1 GB volume takes around 40 MB (about 4%) initially for storing the metadata, whereas a file system of size 10 MB takes around 7.3 MB (73%) initially for storing the metadata.

18.5.3 OPTIONS

size Size of the file system (for example 10m, 10M, 25g, 100G).

nmirrors Number of mirrors.

ncolumns Number of columns.

protection=disk If the protection is set to `disk`, then mirrors are created on separate disks. This flag works only for the file systems of type mirrored, mirrored-striped, and striped-mirror. The disks may or may not be in the same pool.

protection=pool If the protection is set to `pool`, then mirrors are created in separate pools. This flag works only for the file systems of type mirrored, mirrored-striped, and striped-mirror. If not enough space is available, then the file system creation operation fails. The `protection=pool` option is not supported for an isolated pool. If the file system is created with the `protection=pool` option, then both pools in question cannot be merged to create a single pool, which defeats the purpose of `protection=pool`.

stripeunit=<kilobytes> Set the stripe width of the file system, where possible values of kilobytes are 64, 128, 256, 512, 1024, and 2048.

blksize=<bytes> Set the block size of the file system, where possible values of bytes are 1024, 2048, 4096, and 8192. Default block size is 8192.

pdir_enable={yes|no} Enable or disable partition directory for the file system. The default value is *pdir_enable=no*, which means partition directory is disabled for the file system.

encrypt={yes|no} Specify whether to create the file system on encrypted volume. If set to `on`, file system is created on encrypted volume. The default value is *encrypt=off*.

worm={yes|no} Specify whether to create a worm-enabled file system. If set to `yes`, file system is created with WORM support enabled. The default value is *worm=no*.

workload={virtualmachine|mediaserver} Type of workload using this file system. The workload type cannot be changed after the file system is created. If the workload type is virtualmachine, then all the files in the file system have a minimum extent size of 1MB. This reduces the file system fragmentation and improves virtual machine I/O performance.

layout={striped|striped-mirror|mirrored-stripe} Layout of the underlying volume on which the file system is created. The default value is layout=striped.

vol_mediatype={hdd|ssd|vxdefault} Specify the disk type to be used to create file system. If set to `hdd`, file system will be created on hdd disks. If set to `ssd`, file system will be created on ssd disks. The default value is set to *vol_mediatype=vxdefault*.

multi_volume={yes|no|vxdefault} Specify whether to create multiple volumes for a file system. If set to `yes`, multiple volumes will be created. If set to `no`, single volume will be created. The default value is *multi_volume=vxdefault*; it will create single volume.

18.5.4 COMMAND DESCRIPTIONS

`fs create simple` *fs_name size pool1* [, *disk1*,...] [blksize=<bytes> [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a simple file system with the specified size on one of the specified pools/disks and make it online.

`fs create mirrored` *fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a mirrored file system with the specified number of mirrors and make it online.

`fs create striped` *fs_name size ncolumns pool1* [, *disk1*,...] [stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt=on|off}] [worm={yes|no}]

Create a striped file system with the specified number of stripes and make it online.

`fs create mirrored-stripe` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a mirrored-striped file system with a specified number of mirrors and stripes and make it online.

`fs create striped-mirror` *fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>] [blksize=<bytes>] [pdir_enable={yes|no}] [encrypt={on|off}] [worm={yes|no}]

Create a striped-mirrored file system with a specified number of mirrors and stripes and make it online.

`fs defrag now` *fs_name time*

Defragment a file system now. The *time* value should be larger than 1 minute or infinite.

`fs destroy` *fs_name*

Destroy a file system.

`fs reclaim` *fs_name*

Reclaim thin storage under a file system.

`fs list` [*fs_name*]

List all the file systems.

`fs online` *fs_name*

Make the file system online.

`fs offline` *fs_name*

Make the file system offline.

`fs growto` *tier_name fs_name new_length* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vols]

Grow the file system's given tier to a specified size. If no pool is specified with the command, the disks for growing the file system can be taken from any available pool. The protection flag takes the default value of "disk" in this case. The value of protection field cannot be set to "pool" when no pool is specified with the command. If balanced=yes, all the volumes of the file system are grown by the same percentage which is calculated based on the specified new_length. If balanced=no, the file system is grown linearly starting from the last volume. This operation may convert the layout of the file system if the command determines that the new file system is too large for the original layout.

`fs growby` *tier_name fs_name length_change* [*pool1* [, *disk1*,...]] [protection=disk|pool] [balanced=yes|no] [num_vols]

Grow the file system's given tier by a specified size. If no pool is specified with the command, the disks for growing the file system can be taken from any available pool. The protection flag takes the default value of `disk` in this case. The value of protection field cannot be set to `pool` when no pool is specified with the command. If balanced=yes, all the volumes of the file system are grown by the same percentage which is calculated based on the specified length_change. If balanced=no, the file system is grown linearly starting from the last volume. This operation may convert the layout of the file system if the command determines that the new file system is too large for the original layout. See the description of `fs growto` for more information if you resize a file system.

`fs shrinkto` *tier_name fs_name new_length* [balanced=yes|no]

Shrink the file system's given tier to a specified size. If balanced=yes, all the volumes of the file system are shrunk by the same percentage which is calculated based on the specified new_length. If balanced=no, the file system is shrunk linearly starting from the last volume.

See the description of `fs growto` for more information if you resize a file system.

`fs shrinkby` *tier_name fs_name length_change* [balanced=yes|no]

Shrink the file system's given tier by a specified size. If balanced=yes, all the volumes of the file system are shrunk by the same percentage which is calculated based on the specified length_change. If balanced=no, the file system is shrunk linearly starting from the last volume.

See the description of `fs growto` for more information if you resize a file system.

`fs addmirror` *tier_name fs_name pool1* [, *disk1*,...] [protection=disk|pool]

Add a mirror to the tier of file system.

`fs rmmirror` *tier_name fs_name [pool_or_disk_name]*

Remove a mirror from the tier of the file system that is spanning on the specified pools/disks. If a pool name is the same as a disk name, then the mirror present on the pool is deleted.

`fs addcolumn` *tier_name fs_name ncolumns pool_or_disk_name*

Add the specified number of columns to the tier of the file system. In case of a striped file system, the number of disks specified should be equal to *ncolumns*. In case of mirrored-stripe and striped-mirror, the disks specified should be eqaul to (ncolumns * number_of_mirrors_in_fs).

`fs rmcolumn` *tier_name fs_name*

Remove a column from the tier of the file system.

`fs checkmirror`

Show file systems that have stale mirrors.

`fs resync` [*fs_name*]

Resynchronize all stale mirrors for all file systems or for a certain file system.

`fs checkresync`

Show resynchronization and rollback synchronization progress running in the background.

`fs setfastresync` *tier_name fs_name [pool_or_disk_name]*

Enable fast resync for the specified tier of a file system.

`fs unsetfastresync` *tier_name fs_name*

Disable fast resync for the specified tier of a file system.

`fs fsck` *fs_name* [*mode=quick*|*mode=full*]

Check and repair the specified file system.

File system fsck checks the consistency of the metafs, the datafs, and the database and repairs any inconsistencies found.

File system quick-fsck mode runs a Veritas File System (VxFS) full-fsck on the metafs and datafs file systems (on the file systems that are marked with a VxFS full-fsck flag) and repairs any inconsistencies in the cloud tier. For example, the cloud bucket is not present, but a reference to it exists in the file system. The quick-fsck mode does not traverse the entire namespace of either metafs, datafs, or cloud tier.

File system full-fsck mode, apart from doing what the quick-fsck mode does, also traverses the entire namespace of either metafs, datafs, and cloud tiers looking for inconsistencies.

`fs alert set numinodes|numspace|fullspace value` *[fs_name]* [*snapshot_name*]

Allow users to set alerts on file systems and snapshot usage. The user can set alerts based on the number of inodes used or the file system space used. The value should be in a percentage when the alert is being set for the disk space. The default alert set for the disk space usage is at 80%. When the alert set is numinodes, the input should be the number of inodes. The default alert value for numinodes is set at 0. This will not send any alert till you set it to a different value. When this command is not supplied with the file system name, it changes the default system wide value for the alerts. For the file systems on which alerts are set explicitly, the alert is sent based on the value specified and not the default value. The alerts can be observed by the user in the "Report> showevents" CLI command. You can specify a comma-separated list of file systems.

fullspace is the tunable for file system full protection. For the file system to run efficiently, users should always reserve some space for the file system, instead of using 100% of the space. When file system usage is above the limit set by fullspace, all the NFS/CIFS shares on top of the file system are automatically changed to readonly to prevent the file system from becoming full. When users grow the file system or delete some files to get enough free space, the shares are automatically changed back to readwrite (there might be a delay for up to 5 minutes). By default, fullspace is 0, which means this function is disabled.

`fs alert unset numinodes|numspace|fullspace` *[fs_name]* [*snapshot_name*]

Allow users to unset the alerts set on the file system and the snapshot name. If an alert on any file system is unset, the user gets an alert for the file system based on the default values. You can specify a comma-separated list of file systems. When fullspace is unset (or set to 0), the shares that were changed to readonly due to file system high usage are changed back to readwrite mode immediately.

`fs alert show`

Show the current disk space usage and the alert value set. "(D)" beside the value shows that the value is the default value through the system.

`fs upgrade` *fs_name*

This command upgrades the file system layout to version 13. The file system needs to be online for this command to proceed. The version information about the file system is displayed in the `fs list fs_name` command.

`fs defrag schedule create` *sched_name duration minute [hour] [day] [month] [day_of_week] [node]*

Create a defrag schedule. The time and frequency of this schedule are specified in the command line in crontab format. This scheduled job runs on the node specified. If this node is not online at the time of the job, then this particular defrag job runs on the CFS primary. The scheduled defrag job may last up to the specified duration hours or minutes.

`fs defrag schedule remove` *sched_name*

Remove the defrag schedule by name *sched_name*. Make sure none of the file systems have this *sched_name* assigned.

`fs defrag schedule show` *[sched_name]*

Show the defrag schedule information for the schedule by name *sched_name*. If *sched_name* is not specified, all the information about all the schedules are displayed.

`fs defrag schedule start` *fs_name sched_name*

Assign or start the defrag schedule by name *sched_name* for the file system by name *fs_name*.

`fs defrag schedule stop` *fs_name*

Stop the scheduled defrag schedule for the file system by name *fs_name*.

`fs defrag schedule list` *fs_name*

List the scheduled defrag job details for the file system by name *fs_name*.

`fs policy add operation=move` *policy_name fs_name from_tier to_tier retrieval_option=Expedited\|Standard\|Bulk pattern* [`atime` *condition*] [`mtime` *condition*]

Create a data movement policy for the file system *fs_name*. The policy moves files and directories that meet the criteria from the source tier (*from_tier*) to the destination tier (*to_tier*). Movement can be from the cloud tier to a disk tier or from a disk tier to the cloud tier.

The retrieval option determines the time needed to move files from Amazon Glacier to on-premises. This option is not used when moving files from on-premises to Amazon Glacier.

Expedited retrievals typically complete within 1-5 minutes. The expedited option is expensive and you should use it conservatively. Files moved from the Amazon Glacier tier with the expedited option might return with the following error: InsufficientCapacityException (503 service unavailable). This error occurs if there is insufficient capacity to process the expedited request. This error only applies to expedited retrievals and not to standard or bulk retrievals.

Standard retrievals typically complete within 3-5 hours.

Bulk retrievals typically complete within 5-12 hours. Bulk is the default option.

Note: The maximum file size for moving files to AWS Glacier is 4 GB.

Pattern identifies the files or directories that you want to move between tiers. Pattern is required. You can further restrict the files or directories to move by specifying the last accessed time (`atime`) or the last modified time (`mtime`). The `atime` and `mtime` criteria are optional.

`fs policy add operation=delete` *policy_name fs_name from_tier pattern* [`atime` *condition*] [`mtime` *condition*]

Create a data deletion policy for the file system *fs_name*. The policy deletes files and directories that meet the criteria from the specified tier (*from_tier*). Pattern identifies the files or directories that you want to delete. Pattern is required. You can further restrict the files or directories to delete by specifying the last accessed time (`atime`) or the last modified time (`mtime`). The `atime` and `mtime` criteria are optional.

`fs policy modify` *policy_name pattern* [`atime` *condition*] [`mtime` *condition*]

Modifies the pattern, atime, and mtime search criteria for the file movement or deletion of the policy. atime and mtime are optional criteria. You cannot change the policy operation, or change the storage tiers that were specified when the policy was created.

`fs policy delete` *policy_name fs_name*

Stop any data movement or data deletion policy that was set for a file system. You cannot delete a policy if the policy is running.

`fs policy rename` *old_policy_name new_policy_name*

Rename an existing policy to a new policy name. You cannot rename a policy if the policy is running.

`fs policy list [fs_name]`

List all the data movement and data deletion polices that are set for all the file systems. If *fs_name* is included in the command, then the command lists all the policies for the specified file system.

`fs policy run` *policy_name*

Move or prune files according to the configured file system policy *policy_name*. The policy runs in the background until it gets completed, or until you abort or pause the policy. If a policy run encounters an error, it is retried 5 times before the run is aborted.If the policy is already active but paused, you are prompted on whether you want to resume the paused job or you want to start a new run. You cannot run a policy if poilcy is scheduled or the last instance is still running.

`fs policy dryrun` *policy_name*

Perform a dry run of the file system policy *policy_name*. This command previews the running of the policy but does not actually move or prune any files. Use this command to estimate the I/O activity involved if the policy is run. The dry run collects the statistics such as the number of files and the amount of data that will be moved. You cannot perform a dryrun if the policy is already running.

`fs policy status` *policy_name*

Show the status of the currently running policy or dry run of the policy *policy_name*. If the policy is not currently running, the status shows the most recent run. The information includes the type of the run (normal or dry run), the status, the total data, the amount of data moved so far, the number of files, and the number of files moved or deleted so far.

`fs policy abort` *policy_name*

Aborts the currently executing policy run or dry run for the policy *policy_name*. The abort is immediate and interrupts any data movement in progress. The aborted policy cannot be resumed using the `fs policy resume` command. If you need to restart the policy, start a new run with the `fs policy run` command.

`fs policy pause` *policy_name*

Pause the currently executing policy run or dry run for the policy *policy_name*. The pause is immediate and interrupts any data movement in progress. You can resume the policy using the `fs policy resume` command. You can abort the paused policy using the `fs policy abort` command. When you pause a policy, the scheduled runs of the policy are also skipped until the policy is resumed.

`fs policy resume` *policy_name*

Restart the policy run or dry run that was paused with the `fs policy pause` command. The policy resumes from the point where the policy run was interrupted.

`fs policy schedule create` *fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*

Create the file system policy schedule for the file system *fs_name*. The schedule uses a time format similar to the format used in UNIX cron configuration files.

The schedule applies to the file system policies created using the `fs policy create` command. When a schedule is set for a particular file system, all the policies for that file system are started at the scheduled times. If any policy is paused using the `fs policy pause` command, the policy does not run at the scheduled time. The policy is skipped until the policy is resumed using the `fs policy resume` command.

About the schedule format:

A schedule is specified in a format similar to the UNIX crontab format. The format uses five fields to specify when the schedule runs:

`minute` Enter a numeric value between 0-59, or an asterisk (*), which represents every minute. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`hour` Enter a numeric value between 0-23, or an asterisk (*), which represents every hour. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`day_of_the_month` Enter a numeric value between 1-31, or an asterisk (*), which represents every day of the month. You can also enter a step value (*/x), or a range of numbers separated by a hyphen.

`month` Enter a numeric value between 1-12, or an asterisk (*), which represents every month. You can also use the names of the month. Enter the first three letters of the month (you must use lowercase letters). You can also enter a step value (*/x), or a range.

`day_of_the_week` Enter a numeric value between 0-6, where 0 represents Sunday, or an asterisk (*), which represents every day of the week. You can also enter the first three letters of the week (you must use lowercase letters). You can also enter a step value (*/x), or a range.

A step value (*/x) specifies that the schedule runs at an interval of x. The interval should be an even multiple of the field's range. For example, you could specify */4 for the hour field to specify every four hours, since 24 is evenly divisible by 4. However, if you specify */15, you may get undesired results, since 24 is not evenly divisible by 15. The schedule runs after 15 hours, then 7 hours.

A range of numbers (two values separated by a hyphen) represents a time period during which you want the schedule to run.

Examples:

To run the schedule every two hours every day: 0 */2 * * *

To run the schedule on 2:00 a.m. every Monday: *2 * * 1

To run the schedule at 11:15 p.m. every Saturday: 15 23 * * 6

`fs policy schedule modify` ***fs_name [minute] [hour] [day_of_the_month] [month] [day_of_the_week]*** Modify the file system policy schedule for the file system *fs_name*. The schedule uses a time format similar to the format used in UNIX cron configuration files. Refer to the `fs policy schedule create` section for the detailed description of the schedule format.

`fs policy schedule remove` ***fs_name*** Remove the file system policy schedule associated with the file system *fs_name*.

fs policy schedule list *fs_name* List the file system policy schedule associated with the file system *fs_name*.

fs retention set *path rtime* Sets the retention on a file path *path* or on all the files that are currently present in specified path *path*. *rtime* can be in seconds, hours, months, days or years (s|S|h|H|d|D|m|M|y|Y) or mm-dd-yyyy format or mm-dd-yyyy:hh:mm:ss format or 0. Setting *rtime* as 0 will remove the retention lock for the specified file path *path* or for all the files which are present in the path *path*, if it is a directory. This is only allowed in enterprise mode.

fs retention show *path* Shows the retention value applied on the specified file path *path*. Retention value is expressed in UTC (Coordinated Universal Time).

fs worm set *fs_name* **[minret] [maxret]** Enables WORM support and sets specified file system level minimum and maximum retention for a particular file system. [minret] and [maxret] can be in seconds, hours, months, days or years (s|S|h|H|d|D|m|M|y|Y). If vxdefault is passed, the retention value is unset for the specified parameter.

fs worm get *fs_name* Lists WORM status, minimum and maximum retention period for specified file system. Retention values are in seconds.

`fs setmaxiops` [*fs_name*] *maxiops*

set/reset MAXIOPS on a file system

`fs maxiopslist`

List the value of maximum I/O operations per second (MAXIOPS) set on all the file systems.

`fs iopsstat list` [*fs_name*]

Display a statistical view of the maximum I/O operations per second (MAXIOPS) for a file system.

`fs iopsstat reset` [*fs_name*]

Reset the MAXIOPS satisticis instead of printing them.

`fs tasks`

Lists the long-term file system operations which are in progress on the system. Each task provides the file system name, task type, state and the status of the progress in percentage. Most of the tasks represent I/O being performed on file system volumes. Operations such as read-writeback recovery for mirrored volumes, and parity recalculation for RAID-5 volumes involve moderate to large amounts of I/O. During rolling upgrade, if any of the ECREBUILD/ATCOPY/ATCPY/PLXATT/VXRECOVER/RESYNC/RECOV tasks are running, you may need to wait for the tasks to complete. Especially in FSS (or erasure coding enabled) clusters, it is important to wait for these tasks to complete before you upgrade, reboot, or shut down the node(s).

`fs tasks pause` *fs_name*

Pause all the ongoing tasks for a given file system.

`fs tasks resume` *fs_name*

Resume all the tasks which are in paused state for a given file system.

18.5.5 EXAMPLES

Create a mirrored file system with name `fs1` with disks from the pools `pool1` and `pool2`.

```
Storage> fs create mirrored fs1 100M 2 pool1,pool2
100% [#] Creating mirrored filesystem
```

Add a mirror to the tier of file system fs1.

```
Storage> fs addmirror tier1 fs1 pool3,pool4
```

Remove a mirror from a tier of file system fs1 residing on Disk AMS_WMS0_0.

```
Storage> fs rmmirror tier1 fs1 AMS_WMS0_0
```

Add two columns to the tier of file system fs1.

```
Storage> fs addcolumn tier1 fs1 2 pool3
```

Remove column from the tier of file system fs1.

```
Storage> fs rmcolumn tier1 fs1
```

Show file systems that have stale mirrors.

```
Storage> fs checkmirror
fs_name:
-----------
mirror3
```

Resynchronize all stale mirrors for all file systems.

```
Storage> fs resync
Resync stale mirrors for file systems that are started in the background.
```

Resynchronize all stale mirrors for a certain file system.

```
Storage> fs resync mirror3
Resync stale mirror for file system mirror3 is started in background.
```

Show resynchronization progress running in the background.

```
Storage> fs checkresync
FS                  MIRROR              TYPE      PROGRESS  START_TIME
↪  USED_TIME   REMAINING_TIME
=============================================================================================================
mir2                tier 1,mirror 02    RESYNC    6.46%     Jun/05/2011/09:39:53
↪0:5:9       1:14:34
mir3_roll2          tier 1              ROLLBACK  1.28%     Jun/05/2011/14:51:40
↪0:0:12      15:23
mir3                tier 1,mirror 03    RESYNC    7.67%     Jun/05/2011/15:10:26
↪0:1:14      14:50
```

Make a file system offline.

```
Storage> fs offline fs1
100% [#] Offline filesystem
```

Check and repair a file system while it is in offline state. It tries normal fsck first, if fullfsck flag is set, it proceeds further accordingly based on the given input.

```
Storage> fs fsck fs1
Do you want to do fsck without log replay? yes|no
n
File system fs1 fsck successfully
Storage>
```

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```
Storage> fs fsck fs1
Do you want to do fsck without log replay? yes|no
y
File system fs1 fsck successfully
Storage>
Storage> fs fsck fs1
Do you want to do fsck without log replay? yes|no
n
File system fs1 marked for full fsck.Running full fsck may take long time for␣
↪completion.
Do you want to continue? yes|no
n
File system fs1 full fsck canceled.
Storage>
Storage> fs fsck fs1
Do you want to do fsck without log replay? yes|no
n
File system fs1 marked for full fsck.Running full fsck may take long time for␣
↪completion.
Do you want to continue? yes|no
y
Storage>
Check the fullfsck status by running the command again.
Storage>
Storage> fs fsck fs1
fsck of fs1 is successful
Storage> fs list mir3
General Info:
===============
Block Size:       1024 Bytes
Version:          Version 11
Cluster5_01:      online

primary
=======
Size:            30.00G
Use%:            0%
Layout:          mirrored
Mirrors:         4
Columns:         -
Stripe Unit:     0.00 K
FastResync:      Enabled

1. Mirror 01:
List of pools:   pool1
List of disks:   disk1 disk2

2. Mirror 02:
List of pools:   pool1
List of disks:   disk3 disk4

3. Mirror 03:
List of pools:   pool1
List of disks:   disk5 disk6

4. Mirror 04:
List of pools:   pool1
```

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```
List of disks:   disk7 disk8

Secondary
=========
Size:            20.00G
Use%:            0%
Layout:          mirrored
Mirrors:         2
Columns:         -
Stripe Unit:     0.00 K
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   disk9 disk10

2. Mirror 02:
List of pools:   pool1
List of disks:   disk11 disk12

FS Type:           Normal

Defrag Status: Not Running
Fullfsck Status: Not Running
Resync Status:
    Tier 1, Mirror 03: 7.67%     Start_time: Jun/05/2011/15:10:26   Work_time: 0:1:14␣
↪    Remaining_time: 14:50
    Tier 1, Mirror 04: 1.08%     Start_time: Jun/05/2011/13:08:07   Work_time: 0:1:21␣
↪    Remaining_time: 2:03:33
    Tier 2, Mirror 02: 11.27%    Start_time: Jun/05/2011/14:03:14   Work_time: 0:0:18␣
↪    Remaining_time: 02:21
Rollsync Status:
    Rollsync  mir3_roll2, Tier 1: 1.28%  Start_time: Jun/05/2011/14:51:40   Work_
↪time: 0:0:12     Remaining_time: 15:23
Relayout Status: Not Running
```

Make a file system online.

```
Storage> fs online fs1
100% [#] Online filesystem
```

Check and repair a file system while it is in offline state.

```
Storage> fs fsck fs1
ACCESS fs ERROR V-288-693 fs1 must be offline to perform fsck.
```

Grow file system's primary tier size to 1 G.

```
Storage> fs growto primary fs1 1g
```

Grow file system's primary tier size by 50 M.

```
Storage> fs growby primary fs1 50M
```

Shrink file system's primary tier by specified size.

```
Storage> fs shrinkby primary fs1 10m
```

Shrink file system's primary tier to just 50 M.

```
Storage> fs shrinkto primary fs1 50M
```

View the list of file systems.

```
Storage> fs list
FS   STATUS       SIZE    LAYOUT   MIRRORS   COLUMNS   USE%    NFS      CIFS      FTP
 ↪     SECONDARY
===  ======       ====    ======   =======   =======   ====  =======  =======
 ↪=======    ==========
fs1  online    100.00M    simple      -         -       3%     no        no       no
 ↪        no
fs2  online    100.00M    simple      -         -       3%     no        no       no
 ↪        no
fs3  online    700.00M    simple      -         -       4%     no        no       no
 ↪        no
fs4  online     69.00M    simple      -         -       4%     no        no       no
 ↪        no
fs5  online      1.94G    simple      -         -       1%     no        no       no
 ↪        yes
fs6  online      1.94G    simple      -         -       1%     no        no       no
 ↪        yes
```

Display detailed information for a specific file system.

```
Storage> fs list fs6
General Info:
===============
Block Size:      1024 Bytes
Version:         Version 11
node_01:         online
node_02:         offline

primary
=======
Size:            500.00M
Use%:            0%
Layout:          mirrored
Mirrors:         2
Columns:         -
Stripe Unit:     0.00 K
FastResync:      Enabled

1. Mirror 01:
List of pools:   p03
List of disks:   ams_wms0_12

2. Mirror 02:
List of pools:   p03
List of disks:   ams_wms0_13

FS Type:           Normal

Defrag Status:   Not Running
```

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```
Fullfsck Status: Not Running
Resync   Status: Not Running
RollSync Status: Not Running
Relayout Status: Not Running
```

Disable FastResync for a primary tier of a file system.

```
Storage> fs unsetfastresync primary fs6
```

Try disabling FastResync for a primary tier of a file system where it is already in disabled state.

```
Storage> fs unsetfastresync primary fs6
ACCESS fs ERROR V-288-655 Fastresync is not enabled for fs6.
```

Enable FastResync for a primary tier of a file system.

```
Storage> fs setfastresync primary fs6
```

Try enabling FastResync for a primary tier of a file system where it is already in enabled state.

```
Storage> fs setfastresync primary fs6
ACCESS fs ERROR V-288-651 File system fs6 is already fastresync enabled.
```

Defragment a file system.

```
Storage>fs defrag fs0 1H10M
The file system fs0 is offline, please online fs0 before defragmentation

Storage>fs defrag fs1 1H10M
it will take some time to do the defragmentation
do you want to continue? yes|no
n
Defragmentation cancelled for fs1
Storage>fs defrag fs1 1H10M
it will take some time to do the defragmentation
do you want to continue? yes|no
y
Storage>
```

You can run other command, and you can check the defragment status by

```
Storage>fs list fs1
General Info:
===============
Block Size:      1024 Bytes
Version:         Version 11
node_01:        offline
node_02:        offline

primary
=======
Size:            1.00G
Use%:            -
Layout:          simple
Mirrors:         -
Columns:         -
```

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```
Stripe Unit:     0.00 K
FastResync:      Disabled

Mirror 1:
List of pools:   pool
List of disks:   disk_4 disk_5

FS Type:           Normal

Defrag Status:   Done successfully
Fullfsck Status: Not Running
```

Destroy a file system.

```
Storage> fs destroy fs6
100% [#] Destroy filesystem
```

Reclaim thin storage under a file system.

```
Storage> fs reclaim fs6
Reclaimed thin storage under file system fs6
```

Set alert on the file system.

```
Storage> fs alert set numinodes 2M fs2
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to 2M on the file system␣
↪fs2
```

Unset the alert on the file system.

```
Storage> fs alert unset numinodes fs2
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to DEFAULT value on the␣
↪file system fs2
```

Set alert on a snapshot of the file system.

```
Storage> fs alert set numinodes 2M fs2 snap1
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to 2M on the file system␣
↪fs2 snapshot snap1
```

Unset the alert on a snapshot of the file system.

```
Storage> fs alert unset numinodes fs2 snap1
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to DEFAULT value on the␣
↪file system fs2 snapshot snap1
```

Set the default alert.

```
test_01.Storage> fs alert set numinodes 2M
ACCESS fs SUCCESS V-288-663 Default Alert on the file systems of type [ numinodes ]␣
↪set to 2M
```

Unset the default alert.

```
test_01.Storage> fs alert unset numinodes
ACCESS fs SUCCESS V-288-663 Alert of type [ numinodes ] set to default value 0
```

Show the alert status.

```
Storage> fs alert show

File System   Numspace(cur_usage/value)   Numinodes(cur_usage/value)   Fullspace(cur_
↪usage/value)
============  =========================  ========================== ␣
↪==========================
fs1           8% / 80% (D)                5 / 0 (D)                    8% / 0% (D)
fs2           6% / 85%                    5 / 1000                     6% / 20%
```

Upgrade the file system layout to the latest layout.

```
Storage> fs upgrade fs1
Upgrading the file system, are you sure that you want to upgrade the file
system, the operation is irreversible, please enter yes/no
yes

ACCESS fs INFO V-288-2578 Proceeding with fs upgrade operation ...
    ACCESS fs SUCCESS V-288-2474 file system upgraded to version 13.


Storage> fs upgrade fs1
ACCESS fs ERROR V-288-2471 File system fs1 is already at upgraded version 13.

Storage> fs upgrade fs2
ACCESS fs ERROR V-288-2482 fs2 must be online to perform upgrade operation.



Storage> fs list fs list fs1
    General Info:
    ===============
    Block Size:        8192 Bytes
    Version:           Version 13
    Volume Encrypted:  No
    Max IOPS:  0
    isaC_01:        online
    isaC_02:        online

    primary
    =======
    Size:            1.00G
    Use%:            5%
    Layout:          simple
    Mirrors:         -
    Columns:         -
    Stripe Unit:     0.00 K
    Meta Data:       metaOk
    FastResync:      Disabled

    1. Mirror 01:
    List of pools:   tpool
    List of disks:   emc0_0172 emc0_0173 emc0_0174

    FS Type:           Normal

    Defrag Status: Not Running
```

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```
    Fullfsck Status: Not Running
    Resync   Status: Not Running
    Rollsync Status: Not Running
    Relayout Status: Not Running

    WORM Enabled: No
```

Create a schedule by name defrag_sched_1 that runs compression jobs at 11:00 pm every Saturday. This defrag job should run only for 8 hours.

```
Storage>fs defrag schedule create defrag_sched_1 8 15 23 * * 6
Storage>Defrag Schedule creation succeeded
```

Show the defarg schedule details of the schedule by name defrag_sched_1.

```
Storage> fs defrag schedule show defrag_sched_1
Name            Node       Duration  Minute Hour   Day      Month    WeekDay
====            ====       ========  ====== ====   ===      =====    ========
defrag_sched_1   any       8 hours   15     23     *        *        6
```

Start defrag job for file system tpcc_data1 with schedule by name defrag_sched_1.

```
Storage> fs defrag schedule start tpcc_data1 defrag_sched_1
Storage>starting defrag_sched_1 for fsname tpcc_data1
```

List the scheduled compression job status for file system tpcc_data1.

```
Storage> fs defrag schedule list tpcc_data1
Name            Node       Duration   Minute Hour   Day      Month    WeekDay
====            ====       ========   ====== ====   ===      =====    ========
defrag_sched_1  nasvm67_0   1 hour(s)  15     *      *        *        *
```

List the file system properties of vmdk_fs.

```
storage> fs list vmdk_fs
General Info:
==============
Block Size:       8192 Bytes
Version:          Version 11
Workload:         virtualmachine datastore
Extent Size:      1m
ISAGA_01:        online
ISAGA_02:        online

primary
=======
Size:            100G
Use%:            5%
Layout:          striped
Mirrors:         -
Columns:         4
Stripe Unit:     512 K
Metadata:        metaOk
FastResync:      Disabled
```

Create a simple file system on encrypted volume

```
Storage> fs create simple fs4 1g pool1 blksize=2048 pdir_enable=no encrypt=on
100% [#] Creating simple filesystem
ACCESS fs SUCCESS V-288-0 Created simple file system fs4
```

Display detailed information for a specific file system

```
Storage> fs list fs4
General Info:
===============
Block Size:        2048 Bytes
Version:           Version 11
Volume Encrypted:  Yes
ISA_01:        online
ISA_02:        online

primary
=======
Size:            1.00G
Use%:            5%
Layout:          simple
Mirrors:         -
Columns:         -
Stripe Unit:     0.00 K
Meta Data:       metaOk
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   isa_01_intel_nvme2_0

FS Type:           Normal

Defrag Status: Not Running
Fullfsck Status: Not Running
Resync   Status: Not Running
Rollsync Status: Not Running
Relayout Status: Not Running

WORM Enabled: No
```

Create a simple WORM enabled file system

```
Storage> fs create simple fs1 1g pool1 blksize=2048 pdir_enable=no encrypt=off␣
↪worm=yes
100% [#] Creating simple filesystem
ACCESS fs SUCCESS V-288-0 Created simple file system fs1
```

Display detailed information for a specific file system

```
Storage> fs list fs1
General Info:
===============
Block Size:        2048 Bytes
Version:           Version 13
Volume Encrypted:  No
Max IOPS:  0
ISA_01:        online
```

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```
ISA_02:        online

primary
=======
Size:            1.00G
Use%:            5%
Layout:          simple
Mirrors:         -
Columns:         -
Stripe Unit:     0.00 K
Meta Data:       metaOk
FastResync:      Disabled

1. Mirror 01:
List of pools:   pool1
List of disks:   isa_01_intel_nvme2_0

FS Type:           Normal

Defrag Status: Not Running
Fullfsck Status: Not Running
Resync   Status: Not Running
Rollsync Status: Not Running
Relayout Status: Not Running

WORM Enabled:                       Yes
```

Create a data movement policy policy1 for file system fs1 to move the files with file name extension of .txt from the primary tier (disk tier) to tier1 (cloud tier), which did not get accessed or modified for the last 2 days.

```
Storage> fs policy add operation=move policy1 fs1 primary tier1 \*.txt atime >2d␣
↪mtime >2d
ACCESS policy SUCCESS V-288-0 Policy policy1 for fs fs1 added successfully.
```

Retrieve data from Amazon Glacier. Create a policy pol1 to move all the files with file name extension of .txt from Amazon Glacier to the primary tier using the Bulk retrieval option. Files are copied to on-premises and then deleted from Amazon Glacier. The time when the files are available on-premises depends on the type of retrieval option selected.

```
Storage> fs policy add operation=move pol1 gfs2 gtier primary retrieval_option=Bulk␣
↪\*.txt
```

Create a data deletion policy policy2 for file system fs1 to move the files with file name extension of .txt from tier1 (cloud tier), which did not get accessed or modified for the last 2 days.

```
Storage> fs policy add operation=delete policy2 fs1 tier1 \*.txt atime >2d mtime >2d
ACCESS policy SUCCESS V-288-0 Policy policy2 for fs fs1 added successfully.
```

Modify data movement policy policy1 for file system fs1 to move the files with file name extension of .doc, which did not get accessed or modified for the last 3 days.

```
Storage> fs policy modify policy1 \*.doc atime >3d mtime >3d
ACCESS policy SUCCESS V-288-0 Policy policy1 modified successfully.
```

List all policies.

```
Storage> fs policy list
Name     FS name   Action   Source Tier      Destination Tier   Retrieval Option
↪Pattern       Atime   Mtime   State
=======  ========  =======  ===============  =================  =================
↪============  ======  ======  ===========
policy2  fs1       delete   tier1            -                  Standard           \*.
↪txt         >2d     >2d     not running
policy1  fs1       move     primary          tier1              Standard           \*.
↪doc         >3d     >3d     running
```

List all policies set for file system fs1.

```
Storage> fs policy list fs1
Name     FS name   Action   Source Tier      Destination Tier   Retrieval Option
↪Pattern       Atime   Mtime   State
=======  ========  =======  ===============  =================  =================
↪============  ======  ======  ===========
policy2  fs1       delete   tier1            -                  Standard           \*.
↪txt         >2d     >2d     running
policy1  fs1       move     primary          tier1              Standard           \*.
↪doc         >3d     >3d     not running
```

Delete policy policy1 set for file system fs1.

```
Storage> fs policy delete policy1 fs1
ACCESS policy SUCCESS V-288-0 Policy policy1 for fs fs1 deleted successfully.
```

Rename policy2 to policy3.

```
Storage> fs policy rename policy2 policy3
ACCESS policy SUCCESS V-288-0 Policy policy2 renamed to policy3.
```

Show the status of policy run for the policy *Policy1*.

```
storage> fs policy status Policy1
Policy Name:                    Policy1
================================================
Policy Run Type:                normal
Policy Run Status:              running
Total Data (Files):             93.1 GB (100000)
Moved/Deleted Data (Files):     47.7 MB (879)
```

Abort the currently running policy *Policy1*.

```
storage> fs policy abort Policy1
ACCESS policy INFO V-288-0 Policy Policy1 aborted successfully.
```

Start a dry run of the policy *Policy1*.

```
storage> fs policy dryrun Policy1
ACCESS policy INFO V-288-0 Policy Policy1 dryrun started in background, please check
↪'fs policy status' for progress.
```

Pause the currently running policy *Policy1*

```
storage> fs policy pause Policy1
ACCESS policy INFO V-288-0 Policy Policy1 paused successfully.
```

Run the currently paused policy *Policy1*.

```
storage> fs policy run Policy1
Policy Policy1 is not running currently, as it was killed/paused. Would you like to␣
↪start new run (y/n): y
ACCESS policy INFO V-288-0 Policy Policy1 run started in background, please check 'fs␣
↪policy status' for progress.
```

Resume the currently paused policy *Policy1*.

```
storage> fs policy resume Policy1
ACCESS policy INFO V-288-0 Policy Policy1 resume started in background, please check
↪'fs policy status' for progress.
```

Create the schedule for the file system *lfs1*. The schedule runs every 10 minutes.

```
storage> fs policy schedule create lfs1 */10 * * * *
ACCESS policy_schedule SUCCESS V-288-0 Schedule create for file system lfs1 done␣
↪successfully.
```

Modify the schedule of the file system *lfs1*. The schedule now runs every 20 minutes.

```
storage> fs policy schedule modify lfs1 */20 * * * *
ACCESS policy_schedule SUCCESS V-288-0 Schedule modify for file system lfs1 done␣
↪successfully.
```

List the schedule of the file system *lfs1*.

```
storage> fs policy schedule list lfs1
File System Name   Minute   Hour   Day of Month   Month   Day of Week
================   =======  =====  =============  ======  ============
lfs1               20       *      *              *       *
```

Remove the schedule of the file system *lfs1*.

```
storage> fs policy schedule remove lfs1
ACCESS policy_schedule SUCCESS V-288-0 Schedule for file system lfs1 removed␣
↪successfully.
```

Set the retention on the file */vx/myfs/file1 5y*.

```
Storage> storage fs retention set /vx/myfs/file1 5y
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file1 05-20-2020*.

```
Storage> storage fs retention set /vx/myfs/file1 05-20-2020
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file1 05-20-2020:13:45:29*.

```
Storage> storage fs retention set /vx/myfs/file1 05-20-2020:13:45:29
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the file */vx/myfs/file 1 5y*.

```
Storage> storage fs retention set "/vx/myfs/file 1" 5y
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file 1
```

Unset retention on the file */vx/myfs/file1*.

```
Storage> storage fs retention set /vx/myfs/file1 0
ACCESS Retention SUCCESS V-288-0 Successfully set retention on /vx/myfs/file1
```

Set the retention on the directory */vx/myfs/dir1 2y*.

```
Storage> storage fs retention set /vx/myfs/dir1 2y
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Set the retention on the directory */vx/myfs/dir1 05-20-2020*.

```
Storage> storage fs retention set /vx/myfs/dir1 05-20-2020
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Set the retention on the directory */vx/myfs/dir1 05-20-2020:20:17:12*.

```
Storage> storage fs retention set /vx/myfs/dir1 05-20-2020:20:17:12
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Unset retention on the directory */vx/myfs/dir1*.

```
Storage> storage fs retention set /vx/myfs/dir1 0
ACCESS Retention SUCCESS V-288-0 Applying retention on all current files in directory.
↪ This will take some time. Check 'report showevents' command for status.
```

Show the retention on the file */vx/myfs/file1*

```
Storage> storage fs retention show /vx/myfs/file1
ACCESS Retention SUCCESS V-288-0 Retention value on file /vx/myfs/file1 is 06-08-2022␣
↪23:12:51 GMT
```

Show the retention on the file */vx/myfs/file 1*

```
Storage> storage fs retention show "/vx/myfs/file 1"
ACCESS Retention SUCCESS V-288-0 Retention value on file /vx/myfs/file 1 is 06-08-
↪2022 23:12:51
```

Show the retention on the directory */vx/myfs/dir1*

```
Storage> storage fs retention show /vx/myfs/dir1
ACCESS Retention ERROR V-288-0 Specified path is directory path, please give file path
```

Enable WORM support for specified file system.

```
Storage> fs worm set fs1
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system.
```

Enable WORM support for specified file system with minimum retention as 1 day and maximum retention as 4 months.

```
Storage> fs worm set fs1 1D 4M
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

Enable WORM support for specified file system with minimum retention as 2 years.

```
Storage> fs worm set fs1 2Y vxdefault
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

Enable WORM support for specified file system with maximum retention as 3 months.

```
Storage> fs worm set fs1 vxdefault 3m
ACCESS fs SUCCESS V-288-0 Enabled WORM for fs1 file system. Retention is set␣
↪successfully.
```

List WORM attributes for specified file system.

```
Storage> fs worm get fs1
WORM Enabled:   Yes
Min Retention:  86400s
Max Retention:  259200s
```

List the I/O tasks which are running in the background.

```
Storage> fs tasks
FILESYSTEM   TASK      STATE    PROGRESS
==========   ======    =======  =========
fs1          ATCOPY    RUNNING  03.01%
ec_fs1       ECREBUILD RUNNING  12.56%
```

Pause all the ongoing tasks for a given file system.

```
Storage> fs tasks pause fs1
ACCESS fs SUCCESS V-493-10-0 Successfully paused the task for fs1.

Storage> fs tasks
FILESYSTEM  TASK      STATE   PROGRESS
==========  ========  ======  ========
fs1         RELAYOUT  PAUSED  2.50%
```

Resume all the tasks which are in paused state for a given file system.

```
Storage> fs tasks resume fs1
ACCESS fs SUCCESS V-493-10-0 Successfully resumed the task for fs1.

Storage> fs tasks
FILESYSTEM  TASK      STATE   PROGRESS
==========  ========  ======  ========
fs1         RELAYOUT  RUNNING  5.60%
```

18.5.6 SEE ALSO

disk(1), hba(1), fencing(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), quota(1) maxiops(1)

18.6 hba

18.6.1 SYNOPSIS

`hba` [*host_name*]

18.6.2 DESCRIPTION

The storage `hba` command displays WWN, state, and some other information for the specified node. WWN: World Wide Name State: online/offline Speed: Per Second Transmitted_FC_Frames: A value equal to the number of total transmitted Serial Attached SCSI frames across all the protocols. Received_FC_frames: A value equal to the number of total received Serial Attached SCSI frames across all the protocols. Link_Failure_Count: A value equal to the value of the LINK FAILURE COUNT field of the Link Error Status

18.6.3 EXAMPLES

Display WWN information for a particular node.

```
Storage> hba democluster_01
HBA_Node_Name            WWN                      State    Speed Support_Classes␣
↪Transmitted_FC_Frames Received_FC_frames  Link_Failure_Count
-------------            ---                      -----    ----- ---------------- -----
↪---------------- ------------------  ------------------
20:00:00:1b:32:89:15:5f  21:00:00:1b:32:89:15:5f  offline  4_Gbit  Class_3        ␣
↪445606                  1815671                1
20:01:00:1b:32:a9:15:5f  21:01:00:1b:32:a9:15:5f  offline  unknown Class_3         0 ␣
↪                    0                      0
B.Storage>
democluster_01      21:00:00:1b:32:1e:5c:ba, 21:01:00:1b:32:3e:5c:ba
```

Display WWN information for all the running nodes in the cluster.

```
Storage> hba
Node            Host Initiator HBA WWNs
----            ----------------------
democluster_01      21:00:00:1b:32:89:15:5f, 21:01:00:1b:32:a9:15:5f
democluster_02      21:00:00:1b:32:89:71:52, 21:01:00:1b:32:a9:71:52
```

18.6.4 SEE ALSO

disk(1), fencing(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), quota(1)

18.7 maxiops

18.7.1 SYNOPSIS

`fs setmaxiops` [*fs_name*] *maxiops*

`fs maxiopslist` [*fs_name*]

`fs iopsstat list` [*fs_name*]

`fs iopsstat reset` [*fs_name*]

18.7.2 DESCRIPTION

The MAXIOPS feature enables the user to set/reset maximum I/O operations per second (MAXIOPS) value at the file system level and list/reset the maxiops statistics. When multiple applications use the same storage, it is important to balance the workload between them in a way that allows judicious use of storage resources. Setting MAXIOPS lets you control the number of input-output operations per second that storage under file system can process from an application.

18.7.3 OPTIONS

`fs setmaxiops` [*fs_name*] *maxiops*

set/reset MAXIOPS on a file system

`fs maxiopslist`

List the value of maximum I/O operations per second (MAXIOPS) set on all the file systems.

`fs iopsstat list` [*fs_name*]

Display a statistical view of the maximum I/O operations per second (MAXIOPS) for a file system.

`fs iopsstat reset` [*fs_name*]

Reset the MAXIOPS satisticis instead of printing them.

18.7.4 EXAMPLES

Set maximum I/O operations per second (MAXIOPS) value for a file system `fs1` to 1000 :

```
Storage> fs setmaxiops fs1 1000
```

Reset maximum I/O operations per second (MAXIOPS) value for a file system `fs1` :

```
Storage> fs setmaxiops fs1 0
```

List maximum I/O operations per second(MAXIOPS) values for all file systems :

```
Storage> fs maxiopslist

    FS                          MAXIOPS
    =========================== =========
    fs1                                10000
    fs2                               40000
```

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```
    fs3                                 0
    fs4                                                 2000
```

Display statistical view of the maximum I/O operations per second (MAXIOPS) for a file system:

```
Storage> fs iopsstat list fs1
    Listing IOPS stats for every 5 seconds for fs1.....
    Press [CTRL+C] to stop!...
    Mon Jul 10 18:14:36 IST 2017
    Stats for Node test-clus_01
                                        AVG PER SECOND VOLUMEGROUP STATISTICS
    TYP NAME                            MaxIOPS     IncomingIOPS    ServicedIOPS
↪     QueuedIOPS(Transient)
    grp fs1_volgrp                        20000                0               0
↪             0


    Stats for Node test-clus_02
                                        AVG PER SECOND VOLUMEGROUP STATISTICS
    TYP NAME                            MaxIOPS     IncomingIOPS    ServicedIOPS
↪     QueuedIOPS(Transient)
    grp fs1_volgrp                        20000                0               0
↪             0
```

Reset maximum I/O operations per second (MAXIOPS) value for a file system `fs1`:

```
Storage> fs iopsstat reset fs1
    ACCESS fs INFO V-288-0 Resetting IOPS stats for fs1.....
    ACCESS fs SUCCESS V-288-0 Sucessfully resetted the IOPS stat on all nodes
```

18.7.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), cifs(1)

18.8 pool

18.8.1 SYNOPSIS

`pool create` *pool_name disk1* [, *disk2*,...] [*isolated={yes|no}*]

`pool adddisk` *pool_name disk1* [, *disk2*,...]

`pool destroy` *pool_name*

`pool free` [*pool_name*]

`pool list`

`pool markdiskspare` *pool_name disk1* [, *disk2*,...]

`pool removediskspare` *pool_name disk1* [, *disk2*,...]

`pool mvdisk` *src_pool dest_pool disk1* [, *disk2*,...]

`pool rename` *old_name new_name*

`pool rmdisk` *disk1* [, *disk2*,...]

18.8.2 DESCRIPTION

The storage `pool` command manage logical storage pools.

18.8.3 OPTIONS

`pool create` ***pool_name disk1*** **[,** ***disk2*****,...]** **[*****isolated={yes|no}*****]** Create a logical pool from a given set of disks. If isolated=yes, then a new disk group is created. The default value for isolated is isolated=no.

`pool adddisk` ***pool_name disk1*** **[,** ***disk2*****,...]** Add a set of disks to a logical pool. If the disk(s) are resolved only by removing/rewriting the partition table of the disk, use `Storage>disk format` *disk1*.

`pool destroy` ***pool_name*** Destroy a pool.

`pool free` **[*****pool_name*****]** List free space information.

`pool list` List all the pools.

:`pool markdiskspare pool_name` ***disk1*** **[,** ***disk2*****,...]** Mark a disk as a spare disk and add it to a pool which is later used for hot-relocation. In case of failure of a disk or a plex, the affected subdisks are relocated to disks designated as spare disks.

:`pool removediskspare pool_name` ***disk1*** **[,** ***disk2*****,...]** Remove the spare disk flag set on a disk by `markdiskspare` command.

`pool mvdisk` ***src_pool dest_pool disk1*** **[,** ***disk2*****,...]** Move disks from one pool to another.

`pool rename` ***old_name new_name*** Rename a pool.

`pool rmdisk` ***disk1*** **[,** ***disk2*****,...]** Remove disks from a pool.

18.8.4 EXAMPLES

Create a pool `pool1` with disks `Disk_0`, `Disk_1`.

```
Storage> pool create pool1 Disk_0,Disk_1 isolated=yes
ACCESS pool Success V-288-1015 Pool pool1 created successfully.
100% [#] Creating pool pool1
```

View the list of pools.

```
Storage> pool list

Pool  Pool Type  List of disks
=====  ========  ==============
pool1  Isolated  Disk_0 Disk_1
pool2  Normal    Disk_2 Disk_5
```

Destroy pool `pool1`.

```
Storage> pool destroy pool1
ACCESS pool SUCCESS V-288-2056 successfully destroyed the pool.
```

Remove disks from a pool.

```
Storage> pool rmdisk Disk_2
ACCESS pool Success V-288-1360 Disk(s) Disk_2 have been removed successfully.
```

Add disk `Disk_2` to pool `pool2`.

```
Storage> pool adddisk pool2 Disk_2
ACCESS pool Success V-288-1001 Disk(s) Disk_2 are added to pool2 successfully.
```

Mark disk Disk_2 in `pool2` as spare disk.

```
Storage> pool markdiskspare pool_name disk1[,disk2,...]
Storage> pool markdiskspare pool2 Disk_2
ACCESS Pool SUCCESS V-288-1360 Disk(s) Disk_2 have been marked as spared disks␣
↪successfully.
```

Remove spare disk flag on Disk_2 in `pool2`.

```
Storage> pool removediskspare pool_name disk1[,disk2,...]
Storage> pool removediskspare pool2 Disk_2
ACCESS Pool SUCCESS V-288-0 Disk(s) Disk_2 have been removed as spared disks␣
↪successfully.
```

Rename `pool1` to `p01`.

```
Storage> pool rename pool1 p01
ACCESS pool Success V-288-1017 Pool rename successful.
```

Move disk `Disk_0` from pool `p01` to pool `pool2`.

```
Storage> pool mvdisk p01 pool2 Disk_0
ACCESS pool Success V-288-1002 Disk(s) moved successfully.
```

View the free space in each of the pools.

```
Storage> pool free
Pool                                    Free Space     Total Space    Use%
================================        ==========     ===========    ====
p01                                     989.64M         989.64M        0%
pool2                                   2.90G           2.90G          0%
```

View the free space in `pool2`.

```
Storage> pool free pool2
Disk              Free Space     Total Space    Use%
====              ==========     ===========    ====
Disk_0            989.64M        989.64M          0%
Disk_2            991.69M        991.69M          0%
Disk_5            991.69M        991.69M          0%
```

18.8.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), scanbus(1), snapshot(1), tier(1), iscsi(1), quota(1)

18.9 quota

18.9.1 SYNOPSIS

`quota fs enable` [*fs_name*] [`userquota` | `groupquota`]

`quota fs disable` [*fs_name*] [`userquota` | `groupquota`]

`quota fs status` [*fs_name*] [`userquota` | `groupquota`]

`quota fs set` `userquota` | `groupquota` *user_or_group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*] [*fs_name*]

`quota fs setall userquota` | `groupquota` [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*] [*fs_name*]

`quota fs setbygroup` *group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*] [*fs_name*]

`quota fs show` [*fs_name*] [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

`quota fs setdefault userquota` | `groupquota hardlimit` | `softlimit numinodes` | `numspace` [*value*] [*fs_name*]

`quota fs showdefault` [*fs_name*] [`userquota` | `groupquota`]

`quota cifshomedir enable` [`userquota` | `groupquota`]

`quota cifshomedir disable` [`userquota` | `groupquota`]

`quota cifshomedir status` [`userquota` | `groupquota`]

`quota cifshomedir set` `userquota` | `groupquota` *user_or_group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*]

`quota cifshomedir setall userquota` | `groupquota` [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*]

`quota cifshomedir show` [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir showdetail` [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir setdefault` `userquota` | `groupquota hardlimit` | `softlimit numinodes` | `numspace` [*value*]

`quota cifshomedir showdefault` [`userquota` | `groupquota`]

18.9.2 DESCRIPTION

The `storage quota` commands are for configuring disk quotas on file systems for users and groups. There are two types of disk quotas, one is a usage quota (`numspace`), and the other is an inode quota (`numinodes`). A quota limit can be set as a soft quota limit (`soflimit`) where users are warned against exceeding the quota limits, and there is a grace period during which the user is allowed to exceed the quota limits. After the grace period is over, the user is not allowed to exceed the quota limits. Hard quota limits (`hardlimit`) can also be set so that the user is not allowed to exceed the quota limits. The `soflimit` has to be less than the `hardlimit` for any type of quota.

The `storage quota fs` commands are for configuring quotas on file systems that are not part of the CIFS home directories. The `storage quota cifshomedir` commands are for configuring quotas on CIFS home directories. All users and groups visible through different sources of Name Service Lookup (nsswitch), such as, local users, LDAP, NIS, Windows users, and so on, can be configured for quotas.

18.9.3 OPTIONS

`quota fs enable` [*fs_name*] [`userquota` | `groupquota`]

`quota cifshomedir enable` [`userquota` | `groupquota`]

Enable user or group quota on a file system or CIFS home directories.

`quota fs disable` [*fs_name*] [`userquota` | `groupquota`]

`quota cifshomedir disable` [`userquota` | `groupquota`

Disable user or group quota on a file system or CIFS home directories.

`quota fs status` [*fs_name*] [`userquota` | `groupquota`]

`quota cifshomedir status` [`userquota` | `groupquota`]

Show the status of quota settings on a file system or CIFS home directories. This only shows if the quota is enabled or disabled.

`quota fs set` `userquota` | `groupquota` *user_or_group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*] [*fs_name*]

`quota cifshomedir set` `userquota` | `groupquota` *user_or_group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*]

Set a quota value for users or groups on a file system or CIFS home directories. If *value* is not specified, then the default value set from the respective `setdefault` commands is used to configure the quota limit. If *value* is 0, it is treated as unlimited quota. If all values of user or group quota are 0, the user or group is automatically deleted from the quota settings, which means `quota fs status` does not show this user's or group's settings, as all quota values are unlimited for it.

`quota fs setall userquota | groupquota` [`hardlimit | softlimit`] [`numinodes | numspace`] [*value*] [*fs_name*]

`quota cifshomedir setall userquota | groupquota` [`hardlimit | softlimit`] [`numinodes | numspace`] [*value*]

Set quota value for all users and groups for whom the quota has already been set with `set` commands. Other users and groups (for whom quota has not been set previously) are not affected. If *value* is not specified, then the default value set from the respective `setdefault` commands is used to configure the quota limit. If *value* is 0, it is treated as an unlimited quota. If all values of user or group quota are 0, the user or group are automatically deleted from the quota settings, which means `quota fs status` does not show this user's or group's settings, as all quota values are unlimited for it.

`quota fs setbygroup` *group_names domain_name* [`hardlimit` | `softlimit`] [`numinodes` | `numspace`] [*value*] [*fs_name*]

Set the user quota for users of specified groups.

`quota fs show` [*fs_name*] [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir show` [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

`quota cifshomedir showdetail` [`userquota` | `groupquota`] [*user_or_group_names*] [*domain_name*]

Show the quota values that are already set. This also shows the consumed (used space) quota of users and groups. `cifshomedir show` shows the general quota values on the CIFS home directories. `cifshomedir showdetail` shows the detailed quota values set on each file system for CIFS home directories.

`quota fs setdefault` `userquota` | `groupquota` `hardlimit` | `softlimit` `numinodes` | `numspace` [*value*] [*fs_name*]

`quota cifshomedir setdefault userquota|groupquota hardlimit|softlimit numinodes|numspace` [*value*]

Set the default value that is used for quota limits. The values are put in a configuration file only. The actual application of quotas can be done with `set` and `setall` commands using these default values.

`quota fs showdefault` [*fs_name*] [`userquota|groupquota`]

`quota fs showdefault` [`userquota|groupquota`]

Show the default quota values from the configuration file.

18.9.4 EXAMPLES

Enable quota (user and group quota) for file system `fs1`:

```
Storage> quota fs enable fs1
ACCESS quota SUCCESS V-493-10-1063 userquota enabled for file system fs1
ACCESS quota SUCCESS V-493-10-1063 groupquota enabled for file system fs1
```

Enable quota (user and group quota) for CIFS home directories:

```
Storage> quota cifshomedir enable
ACCESS quota SUCCESS V-493-10-1063 userquota enabled for file system fs1
ACCESS quota SUCCESS V-493-10-1063 groupquota enabled for file system fs1
```

Disable userquota for file system `fs1`:

```
Storage> quota fs disable fs1 userquota
ACCESS quota SUCCESS V-493-10-1068 userquota disabled for file system fs1
```

Disable groupquota for CIFS home directories:

```
Storage> quota cifshomedir disable groupquota
ACCESS quota SUCCESS V-493-10-1068 groupquota disabled for file system fs1
```

Show status of file system quota (enabled or disabled):

```
Storage> quota fs status

FS name                    User Quota   Group Quota
=======                    ==========   ==========
fsmirror                   Disabled     Disabled
quotafs                    Enabled      Enabled
striped1                   Enabled      Enabled
fs1                        Disabled     Enabled
```

Show status of CIFS home directory quota (enabled or disabled):

```
Storage> quota cifshomedir status

FS name                    User Quota   Group Quota
=======                    ==========   ==========
CIFS homedirectories       Enabled      Disabled
```

Set userquota (hardlimit and numinodes) of user qtuser on file system `fs1`:

```
Storage> quota fs set userquota qtuser qtdomain hardlimit numinodes 957 fs1
ACCESS quota SUCCESS V-493-10-2238 userquota for qtdomain\qtuser has been set with␣
↪value 957 on file system fs1

Storage> quota fs show fs1 userquota qtuser qtdomain
User quota details for file system fs1:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
qtdomain\\qtuser 0               0               0               0               0    ␣
↪           957
ACCESS quota SUCCESS V-493-10-2242 show quota command successful
```

Set user quota (hardlimit and numinodes) of user qtuser on CIFS home directories:

```
Storage> quota cifshomedir set userquota qtuser qtdomain hardlimit numinodes 6549
ACCESS quota SUCCESS V-493-10-2248 userquota for qtdomain\qtuser has been set with␣
↪value 6549 on CIFS file systems

Storage> quota cifshomedir show

User quota details for CIFS home directories:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
qtdomain\\qtuser 0               20M             100M            0               1000␣
↪           6549
```

Set all existing user quotas to default values:

```
Storage> storage quota fs setall userquota hardlimit numinodes 35 fs1
ACCESS quota SUCCESS V-493-10-2240 userquota has been set with value 35 on file␣
↪system fs1 for all the existing users/groups


Storage> quota fs show fs1

User quota details for file system fs1:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
a1              0               0               10G             0               1000 ␣
↪          1000
qtuser          0               0               0               0               0    ␣
↪          1000
qtuser2         0               1000K           0               0               0    ␣
↪          1000
ACCESS quota SUCCESS V-493-10-2242 show quota command successful
```

Set all existing user quotas for CIFS home directories:

```
Storage> quota cifshomedir show

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
qtuser          0               20M             100M            0               1000 ␣
↪          6549

Storage> quota cifshomedir setall userquota softlimit numinodes 198
ACCESS quota SUCCESS V-493-10-2250 userquota has been set with value 198 on CIFS file␣
↪systems for all the existing users/groups

Storage> quota cifshomedir show

User quota details for CIFS home directories:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
qtuser          0               20M             100M            0               198  ␣
↪          6549
```

Set user quotas for users of specified groups.

```
Storage> quota fs setbygroup grp1 local softlimit numspace 50M fs1
ACCESS quota SUCCESS V-493-10-2243 default value of groupquota has been set with␣
↪value 50M on file system fs1

Storage> quota fs show

User quota details for file system fs1:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
cifsuser1       0               50M             0               0               0    ␣
↪          0
cifsuser2       0               50M             0               0               0    ␣
↪          0
ACCESS quota SUCCESS V-493-10-2242 show quota command successful
```

Show file system quota values:

```
Storage> quota fs show

User quota details for file system quotafs:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft␣
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========      ␣
↪==========      ==========
quotauser       10M             1M              20M             1               5    ␣
↪          1000
quotauser       9M              1M              10M             1               0    ␣
↪          0
```

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```
qtuser          10M             10M             20M             9               5
↪          1000
qtuser2         19M             5M              20M             1               0
↪          1000

User quota details for file system fs1:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========
↪==========      ==========
a1              0               0               10G             0               1000
↪          1000
qtuser          0               0               0               0               0
↪          1000
qtuser2         0               1000K           0               0               0
↪          1000

User quota details for file system longfilesystemnameforqt:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========
↪==========      ==========
qtuser          0               0               0               0               901
↪          1000
ACCESS quota SUCCESS V-493-10-2242 show quota command successful
```

Show CIFS home directory quota values:

```
Storage> quota cifshomedir show

User quota details for CIFS home directories:

User Name       Space Used      Soft Space      Hard Space      Inodes Used     Soft
↪Inodes     Hard Inodes
==========      ==========      ==========      ==========      ==========
↪==========      ==========
qtuser          0               20M             100M            0               198
↪          6549
```

Set default group quota value:

```
Storage> quota fs setdefault groupquota hardlimit numspace 1T
ACCESS quota SUCCESS V-493-10-2243 default value of groupquota has been set with
↪value 1T on file system
```

Set default CIFS home directory user quota value:

```
Storage> quota cifshomedir setdefault userquota hardlimit numspace 2T
ACCESS quota SUCCESS V-493-10-2254 default value of userquota has been set with value
↪2T on CIFS file systems
```

Show default quota values:

```
Storage> quota fs showdefault
```

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```
Default quota values:
=====================

Title                User/Group Quota     Soft Space      Hard Space      Soft Inodes␣
↪     Hard Inodes
=====                ================     ==========      ==========      ========== ␣
↪    ==========
Default Quota        User Quota           -               -               -          ␣
↪    1000
Default Quota        Group Quota          -               1T              -          ␣
↪    -


Per FS default quota values:
============================

FS Name              User/Group Quota     Soft Space      Hard Space      Soft Inodes␣
↪    Hard Inodes
========             ================     ==========      ==========      ========== ␣
↪    ==========
fs1                  User Quota           -               -               -          ␣
↪    1000
```

Show default CIFS home directory quota values:

```
Storage> quota cifshomedir showdefault

CIFS homedir default quota values:
==================================

User/Group Quota     Soft Space      Hard Space      Soft Inodes     Hard Inodes
================     ==========      ==========      ==========      ==========
User Quota           -               2T              -               -
Group Quota          -               -               -               -
```

18.9.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), scanbus(1), snapshot(1), tier(1), iscsi(1), cifs(1)

18.10 rollback

18.10.1 SYNOPSIS

`rollback create space-optimized` *rollback_name fs_name* [cacheobj]

`rollback create full-sized` *rollback_name fs_name pool*

`rollback restore` *fs_name rollback_name*

`rollback refresh` *rollback_name fs_name*

`rollback destroy` *rollback_name fs_name*

`rollback list` [fs_name/rollback_name]

`rollback online` *rollback_name fs_name*

`rollback offline` *rollback_name fs_name*

`rollback cache create` *cache_name* [cache_size] [pool]

`rollback cache list` [cache_name]

`rollback cache growby` *cache_name cache_size*

`rollback cache growto` *cache_name cache_size*

18.10.2 DESCRIPTION

The storage `rollback` commands manage volume-level snapshots. All rollback commands take a file system as an argument and perform operations on the underlying volume of that file system.

Both space-optimized and full-sized rollbacks are supported. Space-optimized rollbacks use a storage cache and do not need a complete copy of the original volume's storage space. However, space-optimized rollbacks are not suitable for write-intensive volumes, because the copy-on-wirte mechanism may degrade the performance of the volume. Full-sized rollbacks use more storage, but it has little impact on write performance after synchronization is completed.

The `rollback` command can be used to perform the following operations:

- Creating/destroying/listing instant rollbacks for a given file system.
- Restoring a file system by a given instant rollback.
- Refreshing an instant rollback from a file system.
- Onlining/offlining instant rollbacks for a given file system.
- Creating/destroying/listing cache object that can be used for instant rollbacks.

18.10.3 OPTIONS

`rollback create space-optimized` *rollback_name fs_name* [cacheobj] Create a space-optimized rollback for a specified file system. If the cacheobj is specified, then the shared cache object is used. Or the system automatically creates a cache object for the rollback.

`rollback create full-sized` *rollback_name fs_name pool* Create a full-sized rollback for a specified file system. The disks used for the rollback are allocated from the specified pool.

`rollback restore` *fs_name rollback_name* Restore a file system by a given rollback.

`rollback refresh` *rollback_name fs_name* Refresh an instant rollback from a file system.

rollback destroy *rollback_name fs_name* Destroy the instant rollback of a file system.

rollback list [fs_name/rollback_name] Display all the instant rollbacks of the specified file system. If rollback name is specified, then display information about the specifed rollback. If no file system name or rollback name is specified, then instant rollbacks of all the file systems are displayed.

rollback online *rollback_name fs_name* Place the instant rollback online.

rollback offline *rollback_name fs_name* Place the instant rollback offline.

rollback cache create *cache_name* **[cache_size] [pool]** Create a shared cache object or convert the file system to a shared cache object for space-optimized rollbacks for the file system. If cache_size and pool are both specified, create a shared cache object. If only cache_name is specified, convert the file system to a shared cache object. cache_name should be the same as an existing file system name that is to be converted. There is a confirmation message in the Veritas Access CLI asking if you want to convert the specified file system to a cache object.

rollback cache list [cache_name] Display the shared cache objects. If no cache_name is specified, all cache objects are displayed. The disabled cache object is listed with '-' as the attribute. If cache_name is specified and the cache object is disabled, the cache object is enabled automatically.

rollback cache growby *cache_name cache_size* Grow the size of the cache object by a specified amount.

rollback cache growto *cache_name cache_size* Grow the size of the cache object to a specified amount.

18.10.4 EXAMPLES

Create a space-optimized rollback of a file system.

```
Storage> rollback create space-optimized snap4 fs4
100% [#] Create rollback
```

Create a full-sized rollback of a file system.

```
Storage> rollback create full-sized snap5 fs4 pool1
100% [#] Create rollback
```

Restore a file system by a given instant rollback.

```
Storage> rollback restore fs4 snap4
```

Destroy the instant rollback of a file system.

```
Storage> rollback destroy snap4 fs4
100% [#] Destroy rollback
```

View the list of instant rollbacks.

```
Storage> rollback list
NAME                    TYPE           FILESYSTEM              SNAPDATE
roll5                   fullinst       fs4                     2010/10/15 20:04
roll1                   spaceopt       bigfs                   2010/10/15 17:03
```

View the list of instant rollbacks.

```
Storage> rollback list fs4
NAME                    TYPE           SNAPDATE             CHANGED_DATA    SYNCED_DATA
roll5                   fullinst       2010/10/15 20:04     640K(0.1%)      800M(100%)
```

Create a shared cache object.

```
Storage> rollback cache create cobj1 100m pool1
100% [#]
```

Convert the file sytem to a shared cache object.

```
Storage> rollback cache create fs_to_cache
ACCESS rollback WARNING V-288-0 Filesystem fs_to_cache will be converted to cache␣
↪object. All data on Filesystem fs_to_cache will be lost
ACCESS rollback WARNING V-288-0 Are you sure to convert fs_to_cache to cache object?␣
↪(yes/no)
yes
100% [#]
```

Grow the size of the cache object by a specified amount. In following example, the cache size is grown by 1M.

```
Storage> rollback cache growby cobj1 1M
ACCESS rollback SUCCESS V-288-0 Size of cache object cobj1 extended successfully.
```

Grow the size of the cache object to a specified amount. In following example, the cache size is grown to 10G.

```
Storage> rollback cache growto cobj1 10G
ACCESS rollback SUCCESS V-288-0 Size of cache object cobj1 extended successfully.
```

Display the shared cache object.

```
Storage> rollback cache list
CACHE NAME                      TOTAL(Mb)    USED(Mb)  (%)     AVAIL(Mb)  (%)     SDCNT
fs_cache1                              10           4  (40)           6  (60)        0
cache2                                  -           -    -            -    -        -

Storage> rollback cache list cache2

rollbacks located on cache cache2:
roll2


Storage> rollback cache list cache_disabled

rollbacks located on cache cache_disabled:
roll3

ACCESS rollback WARNING V-288-0 Cache object cache_disabled was DISABLED, trying to␣
↪restart it.
ACCESS rollback INFO V-288-0 Cache object cache_disabled started successfully.
```

18.10.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), scanbus(1), tier(1), iscsi(1), quota(1)

18.11 scanbus

18.11.1 SYNOPSIS

`scanbus` [force]

18.11.2 DESCRIPTION

The storage `scanbus` command scans all the SCSI devices connected to all the nodes of the cluster. It scans the disks on all the nodes without interrupting existing I/O activity, and it updates the configuration. It does not inform the user even if there is a change in the storage configuration. Users can see the latest storage configuration with the `disk list` command.

18.11.3 OPTIONS

force Tries to import pools forcefully. This may help when normal `scanbus` alone fails.

18.11.4 EXAMPLES

Scan SCSI Bus for newly added disks.

```
    Storage> scanbus
100% [#] Scanning the bus for disks
```

18.11.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), snapshot(1), tier(1), iscsi(1), quota(1)

18.12 snapshot

18.12.1 SYNOPSIS

`snapshot create` *snapshot_name fs_name* [removable=yes|removable=no] [worm=yes|worm=no] [retention_period]

`snapshot restore` *snapshot_name fs_name*

`snapshot destroy` *snapshot_name fs_name*

`snapshot list` [fs_name] [schedule_name]

`snapshot online` *snapshot_name fs_name* [mode=read-only|mode=read-write]

`snapshot offline` *snapshot_name fs_name*

`snapshot worm set` *snapshot_name fs_name*

`snapshot retention set` *snapshot_name fs_name retention_period*

`snapshot quota on` *fs_name* [capacity_limit]

`snapshot quota off` [fs_name] [remove_limit]

`snapshot quota list`

`snapshot schedule create` *schedule_name fs_name max_snapshot_limit minute* [hour]

[day_of_the_month] [month] [day_of_the_week] [max_num_of_parallel_snapshot_removal] [worm=yes|worm=no] [retention_period]

`snapshot schedule modify` *schedule_name fs_name max_snapshot_limit minute* [hour]

[day_of_the_month] [month] [day_of_the_week] [max_num_of_parallel_snapshot_removal] [worm=yes|worm=no] [retention_period]

`snapshot schedule destroyall` *schedule_name fs_name*

`snapshot schedule preserve` *schedule_name fs_name snapshot_name*

`snapshot schedule show` *fs_name* [schedule_name]

`snapshot schedule delete` *fs_name* [schedule_name]

18.12.2 DESCRIPTION

The storage `snapshot` commands manage file system level snapshots. All snapshot commands take a file system as an argument and perform operations on that file system.

The `snapshot` command can be used to perform the following:

- Adding/removing/destroying/listing snapshots for a given file system.
- Restoring a file system by a given snapshot.
- Onlining/offlining snapshots for a given file system.
- Turning on/off quota value for the space that can be utilized for snapshot creation corresponding to a given file system name.
- Creating/modifying a schedule that automatically creates snapshots for a given file system every X hours and Y minutes.

- Destroying all automated snapshots corresponding to a given schedule name and file system name. If any snapshot is preserved or online or WORM-enabled and retention period is active, the command fails.
- Preserving an automated snapshot so that it is not automatically removed after the `snapshot schedule autoremove` command has been run.
- Displaying/deleting schedules created for automated snapshot creation and removal.

Automated snapshot creation

A snapshot can be created in two ways: either manually using the `snapshot create` command, or by creating a schedule that calls the `snapshot create` command periodically depending on the values entered for the number of hours or minutes after which this command should be run. (**Notice**: We suggest to only create one schedule for a specified file system, otherwise `storage snapshot schedule destroyall` may take a long time).

Thus a key feature of the `snapshot` command is to allow for creation of a schedule that can create a snapshot in an automated manner. This is done by storing the values for minute, hour, day-of-month, month, and day-of-week in the crontab along with the name of the file system for which the snapshot is created automatically. To distinguish the automated snapshots, a timestamp corresponding to their time of creation is appended to the schedule name. Thus a snapshot created under schedule1 on 27th February 2009 at 11 am is named as:

```
schedule1_Feb_27_2009_11_00_01_IST
```

The following are the main parameters and the type of values one can provide while creating or modifying a schedule for automated snapshot creation:

1. `Schedule name`: This specifies the name of the schedule corresponding to which a snapshot is created automatically. The schedule name cannot contain an underscore '_' as part of its input value. This is by design. So a schedule name such as s_1 is not allowed.

2. `Max Snapshot Limit`: This specifies the number of snapshots that can be created for a given file system and schedule name. This field accepts numeric input only. The range of this value is from '1' to '366'. This value would imply that only x number of snapshots can be created for a given file system and schedule name. If the number of snapshots corresponding to a schedule name is equal to or greater than the value of this field, then snapshots are automatically destroyed till the number of snapshots is less than the maximum snapshot limit value.

3. `Minute`: This field may contain either an asterisk like *'/15'', which implies every 15 minutes. (Notice: If using* '/xx' format, the smallest value for 'xx' is 15) or a numeric value between 0-59.

4. `Hour`: This field may contain either an asterisk '*', which implies every hour, or a numeric value between 0-23.

5. `Day of month`: This field may contain either an asterisk '*', which implies every day of the month, or a numeric value between 1-31.

6. `Month`: This field may contain either an asterisk '*', which implies run every month, or a numeric value between 1-12. In addition to the numeric values, this field can also accept names of month as arguments, with the first three letters of the month (all in lowercase) serving as input for the given parameter.

7. `Day of Week`: This field may contain either an asterisk '*', which implies every day of the week, or a numeric value between 0-6, with 0 being interpreted as Sunday, 1 as Monday and so on. In addition, this paramter can also accept names, with the first three letters of the month (all in lowercase) serving as input values.

8. `Maximum number of parallel snapshot removals`: Removal of an existing snapshot can cause increased load on the system as internal pointers are altered to remove the snapshot. The removal of snapshots occurs in the background and can take some time to complete. In order to prevent excessive load, the system prevents new snapshots from being created if more than the specified number of snapshots are currently being removed in parallel. This field has a default value of 2.

9. `worm`: This field values are yes or no. To create WORM-enabled snapshots, set worm=yes. WORM-enabled snapshots get created only if the underlying file system is also WORM-enabled.

10. `retention period`: This field takes retention period value in format [1-9](d|D|m|M|y|Y) or yyyy-mm-dd. Retention period can be set only if the WORM attribute is set to yes. It specifies the time for which the snapshot must be retained. The snapshot can be deleted after the retention period has expired. Valid retention period lies between the file system's minimum and maximum retention period and it should also not be before the current date.

Note:

1. By default, the parameters hour, day-of-month, month, and day-of-week for `snapshot schedule create` command contain a '*' or an asterisk value, while max_num_of_parallel_snapshot_removal is '2', WORM is 'no' and retention period is '0' by default as they are all optional arguments.
2. The parameters minute, hour, day-of-month, month, and day-of-week for `snapshot schedule create` and `snapshot schedule modify` can accept numeric values in the form of ranges, where a range is defined as two numbers separated by a hyphen. So if one wishes to run the schedule between 1 am and 4 am, then one can specify a value 1-4 for 'hour' parameter, with the range being inclusive.
3. Similarly, one can specify a step value for other parameters, that is, day-of-month, month, and day-of-week as well. Step values are also allowed after an asterisk '*', so if one wishes to run a schedule every two hours, one just has to specify '*/2' as the input value for the 'hour' parameter.
4. The range of value '' max_num_of_parallel_snapshot_removal'' is from 2 to 5.

So to create a snapshot every two and half hours with at most 50 snapshots per schedule name with a maximum of 4 removing snapshots and WORM as 'no', you have to run the following command:

```
snapshot schedule create sched1 fs1 50 */30 */2 * * * 4 worm=no
```

18.12.3 OPTIONS

`snapshot create` *snapshot_name fs_name* [removable=yes|removable=no] [worm=yes|worm=no] [retention_period]

> Create a snapshot for a specified file system. If the removable attribute is `yes` and if it is offline, then it is removed automatically, if the file system runs out of space. To create a WORM-enabled snapshot, set the WORM attribute as `yes`. To create a WORM-enabled snapshot the file system needs to be WORM-enabled. Retention period can be set only if WORM attribute is set to `yes`. Retention period can be given in format [1-9](d|D|m|M|y|Y) or yyyy-mm-dd. Create snapshot will not mount the created snapshot, to mount the snapshot user needs to call `snapshot online`.

`snapshot restore` *snapshot_name fs_name*

> Restore a file system by a given snapshot. If filesystem is WORM-enabled, restore is not performed on the specified snapshot.

`snapshot destroy` *snapshot_name fs_name*

> Destroy the snapshot of a file system. If retention period is active on the specified snapshot, the snapshot is not destroyed.

`snapshot list` [fs_name] [schedule_name]

> Displays the schedule and all the snapshots of the specified file system. If only the file system is specified, all the snapshots for that file system are displayed. If file system and schedule are not specified, snapshots of all the file systems are displayed.

`snapshot online` *snapshot_name fs_name* [mode=read-only|mode=read-write]

> It mounts the created snapshot in the given mode. If mode is not specified, by default, read-only mode is selected. WORM-enabled snapshot cannot be online in read-write mode.

`snapshot offline` *snapshot_name fs_name*

Place the snapshot offline. It will unmount the snapshot.

`snapshot worm set` *snapshot_name fs_name*

Enable WORM on a specified snapshot.

`snapshot retention set` *snapshot_name fs_name retention_period*

Set retention on a WORM-enabled snapshot. In enterprise mode, retention period can be reduced. In compliance mode, retention period can only be extended.

`snapshot quota on` *fs_name* [capacity_limit]

Disallow creation of snapshots on the given file system when the space used by all the snapshots of that file system exceeds a given capacity limit.

`snapshot quota off` [fs_name] [remove_limit]

Disable quota capacity limit for a specified system. The default remove_limit value is true. If it is false, the capacity limit is not reset.

`snapshot quota list`

Display snapshot quota information of all the file systems.

`snapshot schedule create` *schedule_name fs_name max_snapshot_limit minute* [hour] [day_of_the_month] [month] [day_of_the_week] [max_num_of_parallel_snapshot_removal] [worm=yes|worm=no] [retention_period]

Create a schedule for automated snapshot creation of a particular file system.

`snapshot schedule modify` *schedule_name fs_name max_snapshot_limit minute* [hour] [day_of_the_month] [month] [day_of_the_week] [max_num_of_parallel_snapshot_removal] [worm=yes|worm=no] [retention_period]

Modify the schedule for automated snapshot creation of a particular file system.

`snapshot schedule destroyall` *schedule_name fs_name*

Destroy all automated snapshots corresponding to a given schedule name and file system name. If any snapshot is preserved or online, the command fails.

`snapshot schedule preserve` *schedule_name fs_name snapshot_name*

Preserve a limited number of snapshots corresponding to an existing schedule and a specific file system name so that they are not removed as part of the snapshot schedule autoremove command.

`snapshot schedule show` *fs_name* [schedule_name]

Show all schedules that have been set for automated snapshot creation.

`snapshot schedule delete` *fs_name* [schedule_name]

Delete the schedule set for automated snapshot creation for a particular file system or for a particular schedule.

18.12.4 EXAMPLES

Create a snapshot of a file system.

```
Storage> snapshot create snapshot1 fs1
100% [#] Create snapshot
```

Restore a file system by a given snapshot.

```
Storage> snapshot restore snapshot1 fs1
```

Set WORM on snapshot.

```
Storage> snapshot worm set snapshot1 fs1
100% [#] Snapshot worm set
ACCESS snapshot SUCCESS V-493-10-0 WORM is set on snapshot snapshot1.
```

Set 1 day retention period on WORM-enabled snapshot.

```
Storage> snapshot retention set snapshot1 fs1 1D
100% [#] Snapshot retention set
ACCESS snapshot SUCCESS V-493-10-0 Retention period is set on snapshot snapshot1.
```

Create a WORM snapshot with 1 day retention period,

```
Storage> snapshot create snapshot2 fs1 removable=yes worm=yes 1D
100% [#] Create snapshot
```

Destroy the snapshot of a file system.

```
Storage> snapshot destroy snap1 fs1
100% [#] Destroy snapshot
```

View the list of snapshots.

```
Storage> snapshot list
Snapshot                                FS       Status     ctime                 ␣
↪mtime                  Removable  Preserved  WORM  Retention Period
=======                                 ===      ======     =====                 ␣
↪=====                  =========  =========  ====  ==================
snap2                                   fs1      offline    02:40:43.27.Jul.2009  ␣
↪02:40:57.27.Jul.2009   no         no         no    -
snapshot1                               fs1      offline    03:35:11.30.Aug.2021  ␣
↪03:35:11.30.Aug.2021   yes        no         yes   01:00:00.31.Aug.2021
snapshot2                               fs1      offline    03:35:11.31.Aug.2021  ␣
↪03:35:11.31.Aug.2021   yes        no         yes   01:00:00.01.Sep.2021
sc1_24_Jul_2009_21_34_01_IST            fs1      offline    21:34:03.24.Jul.2009  ␣
↪21:34:03.24.Jul.2009   yes        no         no    -
sc1_24_Jul_2009_19_34_02_IST            fs1      offline    19:34:04.24.Jul.2009  ␣
↪19:34:04.24.Jul.2009   yes        no         no    -
presnap_sc1_24_Jul_2009_18_34_02_IST    fs1      offline    18:34:04.24.Jul.2009  ␣
↪18:34:04.24.Jul.2009   yes        yes        no    -
sc1_24_Jul_2009_17_34_02_IST            fs1      offline    17:34:04.24.Jul.2009  ␣
↪17:34:04.24.Jul.2009   yes        no         no    -
```

Display the list of snapshots for a given file system.

```
Storage> snapshot list fs2
Snapshot                                Schedule Name   Status    ctime               ␣
↪mtime                  Removable   Preserved  WORM  Retention Period
======                                  =============   ======    =====               ␣
↪=====                  =========   =========  ====  ================
snap2                                       -          offline   02:40:43.27.Jul.2009 ␣
↪02:40:57.27.Jul.2009   yes         no         no    -
sc1_24_Jul_2009_22_34_02_IST                sc1        offline   22:34:09.24.Jul.2009 ␣
↪22:34:09.24.Jul.2009   yes         no         no    -
sc1_24_Jul_2009_21_34_01_IST                sc1        offline   21:34:03.24.Jul.2009 ␣
↪21:34:03.24.Jul.2009   yes         no         no    -
sc1_24_Jul_2009_19_34_02_IST                sc1        offline   19:34:04.24.Jul.2009 ␣
↪19:34:04.24.Jul.2009   yes         no         no    -
```

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```
presnap_sc1_24_Jul_2009_18_34_02_IST     -          offline   18:34:04.24.Jul.2009
↪18:34:04.24.Jul.2009  yes        yes        no     -
sc1_24_Jul_2009_17_34_02_IST             sc1        offline   17:34:04.24.Jul.2009
↪17:34:04.24.Jul.2009  yes        no         no     -
```

Display the list of snapshots corresponding to a file system and schedule name.

```
Storage> snapshot list fs1 sc1
Snapshot                                 Status     ctime                     mtime
↪                  Removable  WORM  Retention Period
================================         ======     =====                     =====
↪                  =========  ====  ================
sc1_24_Jul_2009_22_34_02_IST               offline    22:34:09.24.Jul.2009
↪22:34:09.24.Jul.2009      yes        no    -
sc1_24_Jul_2009_21_34_01_IST               offline    21:34:03.24.Jul.2009
↪21:34:03.24.Jul.2009      yes        no    -
sc1_24_Jul_2009_20_34_02_IST               offline    20:34:04.24.Jul.2009
↪20:34:04.24.Jul.2009      yes        no    -
sc1_24_Jul_2009_19_34_02_IST               offline    19:34:04.24.Jul.2009
↪19:34:04.24.Jul.2009      yes        no    -
sc1_24_Jul_2009_18_34_02_IST               offline    18:34:04.24.Jul.2009
↪18:34:04.24.Jul.2009      yes        no    -
```

Make a snapshot offline.

```
Storage> snapshot offline snapshot1 fs1
100% [#] Offline snapshot
```

Make a snapshot online with read-write mode.

```
Storage> snapshot online snap2 fs1 mode=read-write
100% [#] Online snapshot
```

Enable the snapshot quota of a file system.

```
Storage> snapshot quota on fs1
Storage> snapshot quota on fs1 1M
```

Disable the snapshot quota of a file system.

```
Storage> snapshot quota off fs2
Storage> snapshot quota off fs3 true
Storage> snapshot quota off fs4 false
Storage> snapshot quota off fs5
```

Display the list of snapshot quotas of all the file systems.

```
Storage> snapshot quota list
FS                                 Quota      Capacity Limit
================================== =====      ==============
fs1                                on              1M
fs2                                off              0
fs3                                off              0
fs4                                off             1M
fs5                                off              0
```

Create a schedule for automated snapshot creation of a given file system every 3 hours on a daily basis and only 30 snapshots can be treated for a given schedule, and the maximum removing snapshots is 3.

```
Storage> snapshot schedule create schedule1 fs1 30 * 3 * * * 3
```

Modify the existing schedule so that the snapshot is created every 2 hours on the first day of the week, and only 20 snapshots can be created for a given schedule.

```
Storage> snapshot schedule modify schedule1 fs1 20 * 2 * * 1
```

Destroy all automated snapshots created under a given schedule and file system.

```
Storage> snapshot schedule destroyall schedule1 fs1
```

Preserve a snapshot created according to a given schedule and file system name.

```
Storage> snapshot schedule preserve schedule1 fs1 schedule1_Feb_27_16_42_00_IST
```

Create a schedule for automated snapshot creation of a given file system every 3 hours on a daily basis and the maximum removing snapshots is 3 and set worm as no.

```
Storage> snapshot schedule create schedule2 fs2 30 * 3 * * * 3 worm=no
```

Modify the existing schedule so that WORM-enabled snapshot is created with retention period as 1 day

```
Storage> snapshot schedule modify schedule2 fs2 30 * 3 * * * 3 worm=yes 1D
```

List all schedules created for automated snapshot creation corresponding to an existing file system.

```
Storage> snapshot schedule show fs2
FS     Schedule Name    Max Snapshot  Minute  Hour  Day  Month  WeekDay  Max Snapshot␣
↪Removals  WORM  Retention Period
====  ==============  ============  ======  ====  ===  =====  =======  ␣
↪====================  ====  ================
fs2    sched2           20            */25    *     *    *      *        2              ␣
↪         no    0
fs2    sched3           20            */45    *     *    *      *        2              ␣
↪         no    0
fs2    schedule2        30            *       3     *    *      *        3              ␣
↪         yes   1D
```

List automated snapshot schedules for all file systems.

```
Storage> snapshot schedule show
FS     Schedule Name  Max Snapshot  Minute  Hour  Day  Month  WeekDay  Max Snapshot␣
↪Removals  WORM  Retention Period
====  =============  ============  ======  ====  ===  =====  =======  ␣
↪====================  ====  ================
fs1    sched1         10            */50    *     *    *      *        2              ␣
↪        no    0
fs2    sched1         10            */45    *     *    *      *        2              ␣
↪        no    0
fs2    schedule2      30            *       3     *    *      *        3              ␣
↪        yes   1D
```

Delete all schedules created for automated snapshot creation or removal corresponding to an existing file system.

```
Storage> snapshot schedule delete fs1
```

18.12.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), scanbus(1), tier(1), iscsi(1), quota(1)

18.13 tier

18.13.1 SYNOPSIS

`tier add cloud azure` *fs_name tier_name service_name* [*interface*]

`tier add cloud google coldline|multi-regional|nearline|regional` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3` *fs_name tier_name service_name region* [*interface*]

`tier add cloud glacier` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3-compatible` *fs_name tier_name service_name* [*interface*]

`tier add cloud govcloud_us s3|glacier|s3-fips` *fs_name tier_name service_name* [*interface*]

`tier add simple` *tier_name fs_name size pool1* [, *disk1*,...]

`tier add mirrored` *tier_name fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool]

`tier add striped` *tier_name fs_name size ncolumns pool1* [, *disk1*,...] [stripeunit=<kilobytes>]

`tier add mirrored-stripe` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>]

`tier add striped-mirror` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>]

`tier remove` *fs_name tier_name*

`tier list` *fs_name*

`tier listfiles` *fs_name tier_name*

`tier allowmetadata yes` *tier_name fs_name*

`tier allowmetadata` no *tier_name fs_name*

`tier stats usage` *fs_name tier_name*

18.13.2 DESCRIPTION

Veritas Access provides two types of tiers, a primary tier and secondary tiers. Each created file system will have only one primary tier initially. This tier cannot be removed. Operations like `fs addmirror`, `fs growto primary`, `fs shrinkto primary`, and so on, will take tier name as a parameter to perform operations.

The storage `tier` commands manage file system's secondary tiers. All tier commands take file system name and tier name as an argument and perform operations on the specified tier of that file system.

The `tier` command can be used to perform the following:

- adding/removing/modifying the secondary tiers
- adding/removing the cloud tier for file systems
- adding/removing an S3-compatible or Amazon Glacier cloud tier
- listing storage tiers configured for file systems
- listing files that are located on the tiers

18.13.3 OPTIONS

size Size of the tier of the file system (for example, 10m, 10M, 25g, 100G).

nmirrors Number of mirrors.

ncolumns Number of columns.

protection=disk If the protection is set to `disk`, then mirrors are created on separate disks. The disks may or may not be in the same pool.

protection=pool If the protection is set to `pool`, then mirrors are created in separate pools. If not enough space is available, then the file system creation operation fails.

stripeunit=<kilobytes> Set the stripe width of the tier, where possible values of kilobytes are 64, 128, 256, 512, 1024, and 2048.

`tier add cloud azure` *fs_name tier_name service_name* [*interface*]

`tier add cloud google coldline|multi-regional|nearline|regional` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3` *fs_name tier_name service_name region* [*interface*]

`tier add cloud glacier` *fs_name tier_name service_name region* [*interface*]

`tier add cloud s3-compatible` *fs_name tier_name service_name* [*interface*]

`tier add cloud govcloud_us s3|glacier|s3-fips` *fs_name tier_name service_name* [*interface*]

Add a cloud tier to the specified file system using service name and region. You can specify if you want to add an S3-compatible or Amazon Glacier cloud storage tier by specifying the appropriate option. Interface is an optional argument. It takes the name of the public data network interface and uses this interface during cloud data transfer. If vxdefault is passed to interface then it will pick one of the public data network interface.

The supported regions of the Amazon S3 service are the following:

- California (us-west-1)
- Central (ca-central-1)
- Frankfurt (eu-central-1)
- Ireland (eu-west-1)
- London(eu-west-2)
- Mumbai (ap-south-1)
- Ohio (us-east-2)
- Oregon (us-west-2)
- Seoul (ap-northeast-2)
- Singapore (ap-southeast-1)
- Sydney (ap-southeast-2)
- SaoPaulo (sa-east-1)
- Tokyo (ap-northeast-1)
- Virginia (us-east-1)

The Amazon Glacier tier does not support the following regions: Singapore or SaoPaulo.

Region is irrelevant to an S3-compatible cloud storage service.

A file system uses AWS signature version 4 to add authentication information to the requests sent to Amazon S3, Glacier, GovCloud(US), and S3-compatible services. An S3-compatible service can be added as a cloud service using AWS signature version 2 if the S3-compatible service provider supports AWS signature version 2. When such an S3-compatible cloud service is added as a cloud tier to a file system, AWS signature version 2 is used for requests sent to the S3-compatible cloud service.

Warning: When a cloud storage service is used as a cloud tier for a file system, Veritas Access exclusively owns all the buckets and the objects created by Veritas Access. Any attempt to tamper with these buckets or objects outside of Veritas Access corrupts the files represented by those modified objects.

`tier add simple` *tier_name fs_name size pool1* [, *disk1*,...]

Add a simple tier to the specified file system on one of the specified pools/disks.

`tier add mirrored` *tier_name fs_name size nmirrors pool1* [, *disk1*,...] [protection=disk|pool]

Add a mirrored tier to the specified file system.

`tier add striped` *tier_name fs_name size ncolumns pool1* [, *disk1*,...] [stripeunit=<kilobytes>]

Add a striped tier to the specified file system.

`tier add mirrored-stripe` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>]

Add a mirrored-stripe tier to the specified file system.

`tier add striped-mirror` *tier_name fs_name size nmirrors ncolumns pool1* [, *disk1*,...] [protection=disk|pool] [stripeunit=<kilobytes>]

Add a striped-mirror tier to the specified file system.

`tier remove` *fs_name tier_name*

Remove a tier from the file system. All the files on the tier will get relocated to any existing tier. Ensure that you remove the policy by running the `fs policy delete policy_name fs_name` before running the tier remove command. When removing a cloud tier, if there is data present on the specified tier, then the tier remove operation fails, and the data is not automatically relocated.

`tier list` *fs_name*

Show the list of storage tiers configured on the specified file system.

`tier listfiles` *fs_name tier_name*

Show all the files that are on the specified tier.

`tier allowmetadata yes` *tier_name fs_name*

This allows the metadata information on the file system to be written on the other non-cloud tiers as well.

`tier allowmetadata no` *tier_name fs_name*

This restricts the metadata information to be written to the specified tier. If others non-cloud tiers get full, the writes to the specified tier are not served, as the metadata updates are not allowed.

`tier stats usage` *fs_name tier_name*

Show the total usage of the specified cloud tier in the file system.

18.13.4 EXAMPLES

Create a mirrored file system with name `fs1` with disks from the pools `pool1` and `pool2`. Add a mirrored tier to this file system.

```
Storage> fs create mirrored fs1 100M 2 pool1,pool2
100% [#] Creating mirrored filesystem
Storage> tier add mirrored mirror1 fs1 100M 2 pool3,pool4
100% [#] Creating mirrored secondary tier of filesystem
```

Show the list of files on the primary tier of file system `fs1`.

```
Storage> tier listfiles fs1 primary
/.placement_policy.xml
/lost+found/changelog
```

Remove the cloudtier from file system `fs1`.

```
Storage> tier remove fs1 cloudtier
```

Allow storing metadata information to `tier1`.

```
Storage> tier allowmetadata yes tier1 fs1
ACCESS fs SUCCESS V-288-0 Configured the tier tier1 for storing metadata information.
```

Restrict storing metadata information to the primary tier.

```
Storage> tier allowmetadata no tier1 fs1
ACCESS fs SUCCESS V-288-0 Configured the tier tier1 for storing no metadata␣
↪information.
```

Add the cloud storage of the Amazon S3 service named *awstest* in the region of *California* as the cloud tier named *cloudtier* for the file system *fs1* and provide the interface as *eth4*.

```
Storage> tier add cloud s3 fs1 cloudtier awstest California eth4
ACCESS tier SUCCESS V-493-10-2041 Tier cloudtier is added for fs1
```

List the tiers for filesystem fs1

```
Storage> tier list fs1
TIER NAME            TIER TYPE       REGION          CLOUD SERVICE        INTERFACE
==================== =============== =============== ==================== ==========
primary              DISK            -               -                    -
cloudtier            CLOUD(S3)       us-west-1       awstest              eth4
```

Add S3-compatible cloud storage, named s3comptest, as the cloud tier va01 for the file system fs1.

```
Storage> tier add cloud s3-compatible fs1 va01 s3comptest
ACCESS tier SUCCESS V-493-10-2041 Tier va01 is added for fs1
```

Add an Amazon Glacier cloud storage tier.

```
Storage> tier add cloud glacier fs1 gtier2 gserv California
ACCESS tier SUCCESS V-493-10-2041 Tier gtier2 is added for fs1
```

Show the list of storage tiers for the file system `fs1`.

```
Storage> tier list fs1
TIER NAME   TIER TYPE        REGION     CLOUD SERVICE        INTERFACE
==========  ===============  =========  ==================== ==========
primary     DISK             -          -                    -
cloudtier   CLOUD (S3)       us-west-1  amazon_service       eth4
gtier2      CLOUD (Glacier)  us-west-1  gserv                eth4
```

Remove the cloud tier cloudtier from the file system `fs1`.

```
Storage> tier remove fs1 cloudtier
ACCESS tier SUCCESS V-493-10-2047 Tier cloudtier is removed.
```

Show the usage of the cloud tier `cloudtier`.

```
Storage> tier stats usage fs1 cloudtier
Storage Utilized     223.1GB
Number of objects    488
Number of files      231
```

18.13.5 SEE ALSO

disk(1), hba(1), fencing(1), fs(1), pool(1), scanbus(1), snapshot(1), iscsi(1), quota(1)

19

Support Commands

19.1 support

19.1.1 SYNOPSIS

`debuginfo setlog` *loglevel*

`debuginfo upload` *nodename debug-URL module tar_name*

`metasave` [*fsname*] [*output_location*]

`services autofix`

`services online` *servicename*

`services show`

`services showall`

19.1.2 DESCRIPTION

These support utility commands are used to debug any problems that occur within the cluster.

19.1.3 OPTIONS

`debuginfo setlog` ***modulename loglevel*** This command set CIFS, iSCSI-target or NBU log level in the cluster.

`debuginfo upload` ***nodename debug-URL module tar_name*** This command uploads debug information of given module from specified node to the external server. The *debug-URL* can be a remote file or a directory. If debug-URL specifies a remote file, the debuginfo file is saved by that name; if debug-URL specifies a remote directory, the debuginfo file is saved with a name such as nas_debuginfo_nodename_modulename_timestamp.tar.gz. The supported comma separated module names as below, or you can specify default or all to collect information.The *tar_name* is an optional parameter which is the final custom tarball name for all the collected logs and the debuginfo file is saved with name such as tar_name_timestamp.tar.gz

Detailed module Information:

nas - This module collects product information from the cluster nodes.

os - This module collects logs for all kernel dumps and user dumps.

sos-report - This module uses RHEL utility to collect troubleshooting data for Operating System.

explorer - The VxExplorer utility collects logs and environment data from all the servers where the Veritas product is installed.

install - This module collects the install logs from the CPI install log directory /opt/VRTS/install/logs/.

nas-procstacks - This module collects stack trace for all running access daemons.

appliance - This module collects logs about appliance.

sds - This module collects SDS logs.

upgrade - This module collects the upgrade logs for all the cluster nodes.

backup - This module collects the NetBackup client logs and other diagnostic information.

vdd - This module collects the deduplication logs provided dedupe is configured on the cluster nodes.

summary - This module collects the summary of configurations for the modules.

default - This module is default option which collects logs from all modules except the sos-report module from the cluster nodes.

all - This module collects information for all the above modules from the cluster nodes.

metasave [*fsname*] [*output_location*] Collects metasave image of the file system specified by *fsname*. The metasave image is stored at the directory location specified by *output_location*. For a file system, a single metasave image will be created under *output_location*.

services autofix Attempts to fix any faults with any services on all of the running nodes in the cluster.

services online *servicename* Brings a service online. If *servicename* is a parallel service that can be brought online on all nodes, an attempt is made to bring the service online on all of the nodes. If *servicename* is a failover service, an attempt is made to bring the service online on any of the running nodes in the cluster. If the *servicename* is already online, no action is taken.

services show Displays the state of the services on all the running nodes in the cluster. State of the IPs and file systems are shown only if they are not online. It might also attempt to fix any faults with any services.

services showall Displays the state of all of the services on all the running nodes in the cluster. It might also attempt to fix any faults with any of the services.

19.1.4 EXAMPLES

Set CIFS loglevel to 10 in the cluster.

```
Support> debuginfo setlog cifs 10
```

Upload the debugging information of all the nodes to a local machine in the log directory. The path of the log directory is as follows: Access Appliance: /log/.LOGROOT/ Access software: /log/

```
Support> debuginfo upload all file:///log/.LOGROOT/ all
```

Upload the debugging information of node1_1 to a local machine in the log directory. The path of the log directory is as follows: Access Appliance: /log/.LOGROOT/ Access software: /log/

```
Support> debuginfo upload node1_1 file:///log/ all
```

Upload all debug information to an FTP server.

```
Support> debuginfo upload node1_1
ftp://admin@ftp.docserver.veritas.com/patches/ all
```

Upload NAS and install log-related information to an SCP server.

```
Support> debuginfo upload node1_1
scp://root@server.veritas.com:/tmp/ nas,install
```

Upload the debugging information of all nodes and all modules to a local machine at the debug_dir directory in the customly named tarball.

```
Support> debuginfo upload all
file:///debug_dir/ all my_tar
```

Display the state of important services.

```
Support> services show
Verifying cluster state..........done

                       test
Service             1         2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     FAULTED  FAULTED
dedupe            OFFLINE   ONLINE
```

Display the state of all of the services.

```
Support> services showall

                       test
Service             1         2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.115.199    OFFLINE   ONLINE
```

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```
10.216.115.200    ONLINE  OFFLINE
10.216.115.201   OFFLINE   ONLINE
10.216.115.202    ONLINE  OFFLINE
10.216.50.132    FAULTED  FAULTED
/vx/fs1           ONLINE   ONLINE
dedupe           OFFLINE   ONLINE
```

Bring a service online.

```
Support> services online 10.216.50.132
Support> services show

                       test
Service             1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     OFFLINE STARTING
dedupe            OFFLINE   ONLINE
```

Autofix all the services.

```
Support> services show

                       test
Service             1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     FAULTED  FAULTED
dedupe            OFFLINE   ONLINE

Support> services autofix
Attempting to fix service faults.........done
Support> services show

                       test
Service             1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
```

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```
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     OFFLINE STARTING
dedupe            OFFLINE   ONLINE
```

19.2 debuginfo

19.2.1 SYNOPSIS

`debuginfo setlog cifs` *loglevel*

`debuginfo setlog nbu database` *loglevel*

`debuginfo setlog nbu global` *loglevel*

`debuginfo setlog nbu enable critical`

`debuginfo setlog nbu enable robust`

`debuginfo upload` *nodename debug-URL module tar_name*

19.2.2 DESCRIPTION

The `debuginfo` commands can set the CIFS or the NBU client log levels in the cluster, as well as upload debug information to an external FTP or SCP server.

19.2.3 OPTIONS

`debuginfo setlog cifs` ***loglevel*** Set CIFS log level in the cluster. Valid log level value ranges from 0 to 10, 10 being the most detailed. Default is 2.

`debuginfo setlog nbu database` ***loglevel*** Set NetBackup database debugging log level in the cluster. Valid log level value ranges from 1 to 5, 5 being the most detailed.

`debuginfo setlog nbu global` ***loglevel*** Set the NetBackup global debugging log level in the cluster. Valid log level value ranges from 1 to 5, 5 being the most detailed.

`debuginfo setlog nbu enable robust` Enable the NetBackup client to perform robust logging in the cluster.

`debuginfo setlog nbu enable critical` Enable the NetBackup client to perform critical process logging in the cluster.

`debuginfo setlog iscsi-target` ***loglevel*** Set the iSCSI target global log level to critical,error,warning,info or debug.

`debuginfo upload` ***nodename debug-URL module tar_name*** Upload debugging information of given module from specified node to the external server. The *debug-URL* can be a remote file or a directory. If debug-URL specifies a remote file, the debuginfo file is saved by that name; if debug-URL specifies a remote directory, the debuginfo file is saved with a name such as nas_debuginfo_nodename_modulename_timestamp.tar.gz. The supported comma separated module names as below, or you can specify default or all to collect information. The *tar_name* is an optional parameter which is the final custom tarball name for all the collected logs and the debuginfo file is saved with name such as tar_name_timestamp.tar.gz

Detailed module Information:

nas - This module collects product information from the cluster nodes.

os - This module collects logs for all kernel dumps and user dumps.

sos-report - This module uses RHEL utility to collect troubleshooting data for Operating System.

explorer - The VxExplorer utility collects logs and environment data from all the servers where the Veritas product is installed.

install - This module collects the install logs from the CPI install log directory /opt/VRTS/install/logs/.

nas-procstacks - This module collects stack trace for all running access daemons.

appliance - This module collects logs about appliance.

sds - This module collects SDS logs.

upgrade - This module collect the upgrade logs for all the cluster nodes.

backup - This module collects NetBackup client logs and other diagnostic information.

vdd - This module collects the deduplication logs provided dedupe is configured on the cluster nodes.

summary - This module collects the summary of configurations for the modules.

default - This module is default option which collects logs from all modules except the sos-report module from the cluster nodes.

all - This module collects information for all the above modules from the cluster nodes.

19.2.4 EXAMPLES

Set CIFS log level to 10 in the cluster.

```
Support> debuginfo setlog cifs 10
```

Upload the debugging information of all the nodes to a local machine in the log directory. The path of the log directory is as follows: Access Appliance: /log/.LOGROOT/ Access software: /log/

```
Support> debuginfo upload all file:///log/.LOGROOT/ all
```

Upload the debugging information of node1_1 to a local machine in the log directory. The path of the log directory is as follows: Access Appliance: /log/.LOGROOT/ Access software: /log/

```
Support> debuginfo upload node1_1 file:///log/ all
```

Upload all debug information to an FTP server.

```
Support> debuginfo upload node1_1
ftp://admin@ftp.docserver.veritas.com/patches/ all
```

Upload nas and install log related debug information to an SCP server.

```
Support> debuginfo upload node1_1
scp://root@server.veritas.com:/tmp/ nas,install
```

Upload os related debug information to file in debug_dir directory on a node.

```
Support> debuginfo upload node1_1
file:///debug_dir/ os
```

Upload the debugging information of all nodes and all modules to a local machine at the debug_dir directory in the customly named tarball.

```
Support> debuginfo upload all
file:///debug_dir/ all my_tar
```

Set NetBackup client database log level to 3 in the cluster.

```
Support> debuginfo setlog nbu database 3
```

Set iSCSI target log level to critical in the cluster.

```
Support> debuginfo setlog iscsi-target critical
```

19.3 metasave

19.3.1 SYNOPSIS

`metasave` [*fsname*] [*output_location*]

19.3.2 DESCRIPTION

`metasave` command collects metasave image of a file system for debugging purposes.

19.3.3 OPTIONS

`metasave` [*fsname*] [*output_location*] Collects metasave image of the file system specified by *fsname*. The metasave image is stored at the directory location specified by *output_location*. For a file system, a single metasave image is created under *output_location*.

19.3.4 EXAMPLES

Collect metasave of file system *testfs* and store it under **/tmp/meta_out_dir**.

```
Support> metasave testfs /tmp/meta_out_dir
Collecting Metasave image of File System testfs. This may take some time...
SUCCESS: Metasave image of testfs collected succesfully. TAR Image is stored at /tmp/
↪meta_out_dir/metasave_tempfs.tar.
```

19.3.5 NOTE

File system must be offline on all the cluster nodes to create a consistent metasave image. Bring the file system offline before collecting metasave using the `Storage>fs offline` command. Metasave image collection is a time-consuming operation. Total time taken depends on the amount of metadata information present in the file system. Other Veritas Access operations can be run from a separate terminal while the metasave collection is in progress.

19.3.6 SEE ALSO

iostat(1), debuginfo(1), fs(1)

19.4 services

19.4.1 SYNOPSIS

```
services autofix

services online servicename

services show

services showall
```

19.4.2 OPTIONS

servicename Name of the service that needs to be online.

`services autofix` Attempts to fix any faults with any services on all of the running nodes of the cluster.

`services online` ***servicename*** Brings a service online. If *servicename* is a parallel service that can be onlined on all nodes, an attempt is made to bring the service online on all of the nodes. If *servicename* is a failover service, an attempt is made to bring the service online on any of the running nodes in the cluster. If *servicename* is already online, no action is taken.

`services show` Shows the state of the services on all of the running nodes of the cluster. The state of the IPs and file systems are shown only if they are not online. It might also attempt to fix any faults with any of the services.

`services showall` Shows the state of all the services on all of the running nodes of the cluster. It might also attempt to fix any faults with any of the services.

19.4.3 EXAMPLES

Display the state of important services.

```
Support> services show
Verifying cluster state..........done

                        test
Service              1         2
-------          --------  --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     FAULTED  FAULTED
dedupe            OFFLINE   ONLINE
```

Display the state of all of the services.

```
Support> services showall

                        test
Service              1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.115.199    OFFLINE   ONLINE
10.216.115.200     ONLINE  OFFLINE
10.216.115.201    OFFLINE   ONLINE
10.216.115.202     ONLINE  OFFLINE
10.216.50.132     FAULTED  FAULTED
/vx/fs1            ONLINE   ONLINE
dedupe            OFFLINE   ONLINE
```

Bring a service online.

```
Support> services online 10.216.50.132
Support> services show

                        test
Service              1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
nic_pubeth0        ONLINE   ONLINE
nic_pubeth1        ONLINE   ONLINE
fs_manager         ONLINE   ONLINE
dedup_scheduler   OFFLINE  OFFLINE
10.216.50.132     OFFLINE STARTING
dedupe            OFFLINE   ONLINE
```

Autofix all of the services.

```
Support> services show

                        test
Service              1        2
-------          -------- --------
nfs                ONLINE STARTING
cifs               ONLINE   ONLINE
ftp                ONLINE   ONLINE
http               ONLINE   ONLINE
backup             ONLINE  OFFLINE
console            ONLINE  OFFLINE
```

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```
nic_pubeth0       ONLINE   ONLINE
nic_pubeth1       ONLINE   ONLINE
fs_manager        ONLINE   ONLINE
dedup_scheduler  OFFLINE  OFFLINE
10.216.50.132    FAULTED  FAULTED
dedupe           OFFLINE   ONLINE

Support> services autofix
Attempting to fix service faults..........done
Support> services show

                      test
Service            1        2
-------         -------- --------
nfs               ONLINE STARTING
cifs              ONLINE   ONLINE
ftp               ONLINE   ONLINE
http              ONLINE   ONLINE
backup            ONLINE  OFFLINE
console           ONLINE  OFFLINE
nic_pubeth0       ONLINE   ONLINE
nic_pubeth1       ONLINE   ONLINE
fs_manager        ONLINE   ONLINE
dedup_scheduler  OFFLINE  OFFLINE
10.216.50.132    OFFLINE STARTING
dedupe           OFFLINE   ONLINE
```

20

System Commands

20.1 system

20.1.1 SYNOPSIS

`banner get`

`banner set`

`clock show`

`clock set` *time day month year*

`clock timezone` *timezone*

`clock regions` [*region*]

`config export local` *file_name*

`config export remote` *URL*

`config delete` *file_name*

`config list`

`guienable`

`guidisable`

`guistatus`

`gui_servercertificate status`

`gui_servercertificate add`

`gui_servercertificate remove`

`gui_clientcertificate authentication status`

`gui_clientcertificate authentication enable`

`gui_clientcertificate authentication disable`

`kms config list`

`kms config status`

```
kms config server server_ip server_port
kms config delete
kms certificate generate
kms certificate import_server_cert
kms certificate import_client_key
kms certificate import_client_cert
license add <path_of_key_file>
license list
license list details
more enable
more disable
more status
ntp servername server-name
ntp show
ntp enable
option show nfsd
option show cfsmount_ontimeout
option show lltpeerinact
option show dmpio
option show ninodes
option show tunefstab fs-name
option show dmptune
option modify nfsd number [nodename]
option modify dmpio {enclosure enclr_name | arrayname
    array_name | arraytype {A/A|A/P|...} }
        iopolicy={adaptive | adaptiveminq | balanced
        minimumq | priority | round-robin | singleactive}
        [nodename={nodename|"all"}]
option modify ninodes { number | Auto }
option modify tunefstab initial_extent_size value fs-name
option modify tunefstab read_nstream value fs-name
option modify tunefstab read_pref_io value fs-name
option modify tunefstab write_nstream value fs-name
option modify tunefstab write_pref_io value fs-name
option modify tunefstab write_throttle value fs-name
option modify dmptune dmp_path_age value
```

`option modify dmptune` *dmp_health_time value*

`option modify lltpeerinact` *value*

`password-rules get`

`password-rules set` **<minlen=val|vxdefault>** <ucredit=val|vxdefault> <maxclassrepeat=val|vxdefault> <dcredit=val|vxdefault> <ocredit=val|vxdefault> <minclass=val|vxdefault> <lcredit=val|vxdefault> <maxrepeat=val|vxdefault> <difok=val|vxdefault> <pass_min_days=val|vxdefault> <pass_max_days=val|vxdefault> <pass_warn_age=val|vxdefault> <remember=val|vxdefault> <deny=val|vxdefault> <unlock_time=val|vxdefault> <fail_interval=val|vxdefault>

`security fips enable msdp`

`security fips disable msdp`

`security fips show`

`security lock`

`security stig enable` [force]

`security stig precheck`

`security stig show`

`security otp generate`

`security otp show`

`stat sys` [*node*]

`stat cluster`

`stat dmp` [*node*]

`stat fsio` [*fsname*]

`stat all` [*node*]

`stat rdma` [*node*]

20.1.2 DESCRIPTION

The `system` commands set or show the date and time of the system, and start, stop, sync or check the status of the NTP server. It also contains commands related to showing cluster-wide performance statistics and commands. An administrator can enable or disable the more filter on output of the admin console with the help of the `more` command present in this category. It also contains the `option` command display for configuring the tunable parameters. It also contains the `license` commands which provide options to perform necessary operations related to licensing. It also contains the `kms` commands that register or unregister the cluster with the KMS server.

20.1.3 OPTIONS

`banner get` Display the system banner.

`banner set` Set the system banner.

`clock show` Display the current time and date of the system.

`clock set` ***time day month year*** Set the current date and time of the system. The format of time, day, month, and year is given below.:

```
*time*  : HH:MM:SS using a 24 hour clock
*day*   : 1..31
*month* : January | February | March | April | May | June | July |␣
↪August | September | October | November | December
*year*  : YYYY
```

clock timezone *timezone* Set the timezone to the specified name of the time zone.

clock regions [*region*] Display the list of regions. Regions can be one of the following:

```
{ Africa, America, Asia, Australia, Canada, Europe, GMT-offset, Pacific,␣
↪US }
```

config export local *file_name* Save the configuration in a local file.

config export remote *URL* Save the configuration on a remote machine. Exported File is named export.tar.gz if no file name is specified in the URL. `Note`: When exporting files with ftp URL, the given path is considered relative to the current working directory of the session. For example, to get the file named README from your home directory on your ftp site, use:

```
ftp://user:passwd@my.site.com/README
```

But if you want to get the README file from the root directory of the site, you need to specify the absolute file name:

```
ftp://user:passwd@my.site.com//README
```

(that is, with an extra slash in front of the file name.)

config delete *file_name* Delete the locally saved configuration file.

config list View the list of locally saved configuration files.

guienable The system guienable command enables use of the GUI Management Server.

guidisableable The system guidisable command disables use of the GUI Management Server.

guistatus The system guistatus displays status of the GUI Management Server.

gui_servercertificate status The system gui_servercertificate status will display type of certificate being run on GUI Management Server, self-signed or external.

gui_servercertificate add The system gui_servercertificate add provides the option to add/enable external certificate to GUI Management Server.

gui_servercertificate remove The system gui_servercertificate remove will provide the option to remove external certificate from GUI Management Server.

gui_clientcertificate authentication status The system gui_clientcertificate authentication status will display if certificate based client authentication is disabled or enabled.

gui_clientcertificate authentication enable The system gui_clientcertificate authentication enable will enable certficate authentication on client browser.

gui_clientcertificate authentication disable The system gui_clientcertificate authentication disable will disable certificate authentication on client browser.

kms config list Display the registered KMS server details.

kms config status List the status of SSL certificate files that are configured on the cluster.

kms config server *server_ip server_port* Register the KMS server with cluster.

kms config delete Delete the KMS server details.

kms certificate generate Generate SSL self-signed keypair on cluster. It is advised that cluster nodes' time settings are synchronized with NTP server before generating self-signed certificates.

kms certificate import_server_cert Import the KMS servers public key.

kms certificate import_client_key Import the SSL key file of the cluster that is used in CSR.

kms certificate import_client_cert Import the CA signed public key of the cluster.

license add ***<path_of_key_file>*** Adds or installs the license using the .slf key file which is provided. The scp protocol is also supported for adding license. The scp path should be specified: scp://user@ip:<path_of_key_file>

license list Lists the type of license installed on the cluster. The license type can be trialware (trial license for 60 days), subscription (license with validity of 1 year) or perpetual (permanent license).

license list details Lists the details of the license installed on the cluster such as the product name, version, start date, end date, license type, current state etc.

more enable Enable the more filter with the output of the admin console command.

more disable Disable the more filter with the output of the admin console command.

more status Display the status of the more filter.

ntp show Display the NTP status and server name.

ntp enable Enable NTP on all the nodes in the cluster.

ntp servername ***server-name*** Set the NTP server on all the nodes in the cluster. Use *127.127.1.0* as the server name to set the local clock.

option show nfsd Display the number of nfs daemons for each node in a cluster.

option show cfsmount_ontimeout Display cfsmount online timeout.

option show lltpeerinact Display peer inactive timeout.

option show dmpio Display the type of iopolicy corresponding to enclosure, arrayname, arraytype for each node.

option show ninodes Display the global inode cache size.

option show tunefstab ***fs-name*** Display the file-system specific tunefstab parameters and their value for the specified file system.

option show dmptune Display the value of the dmptune attribute.

option modify nfsd ***number*** **[***nodename***]** Modify the number of daemons. The range for the number of daemons is from 1 to 512.

option modify cfsmount_ontimeout ***Value*** Modify cfsmount online timeout. The range is from 300 to 9000. The default timeout value is 1200 seconds.

option modify lltpeerinact ***Value*** Modify peer inactive timeout. The range is from 100 to 36000. The default timeout value is 16 seconds.

option modify dmpio {enclosure ***enclr_name*** **| arrayname**

array_name **| arraytype** ***{A/A|A/P|...}*** **}** iopolicy={adaptive | adaptiveminq | balanced minimumq | priority | round-robin | singleactive} [nodename={nodename|"*"}]

Modify the dmpio policy corresponding to enclosure, arrayname, arraytype.

option modify ninodes *{ number | Auto }* Modify the global inode cache size.

option modify tunefstab *write_throttle value fs-name* Modify the write_throttle parameter value for the specified file system. The parameter write_throttle lets you lower the number of dirty pages per file that the file system generates before writing them to disk. After the number of dirty pages for a file reaches the write_throttle threshold, the file system starts flushing pages to disk even if free memory is still available. The valid range for write_throttle is 0 to 2048 pages. The default value is 0 which impies there is no write_throttle.

option modify tunefstab *initial_extent_size value fs-name* Modify the initial_extent_size parameter value for the specified file system. The default value for initial_extent_size is 1 file system block. The valid range for initial_extent_size is 1 to 32K blocks and must be the power of 2.

option modify tunefstab *read_nstream value fs-name* Modify the read_nstream parameter value for the specified file system. The valid range for read_nstream parameter is 1 to number of stripe columns in the associated volume. For the media server workload file system, the recommended read_nstream parameter value is 1.

option modify tunefstab *read_pref_io value fs-name* Modify the read_pref_io parameter value for the specified file system. The valid values for read_pref_io are 64k, 128k, 256k, or 512k.

option modify tunefstab *write_nstream value fs-name* Modify the write_nstream parameter value for the specified file system. The valid range for read_nstream parameter is 1 to number of stripe columns in the associated volume.

option modify tunefstab *write_pref_io value fs-name* Modify the write_pref_io parameter value for the specified file system. The valid values for write_pref_io are 64k, 128k, 256k, or 512k.

option modify dmptune *dmp_path_age value* Modify the value of dmp_path_age.

option modify dmptune *dmp_health_time value* Modify the value of dmp_health_time.

password-policy get Get the password policy on the system.

password-policy set <minlen=val|vxdefault> <ucredit=val|vxdefault> <maxclassrepeat=val|vxdefault> <dcredit=val|vxdefault> <ocredit=val|vxdefault> <minclass=val|vxdefault> <lcredit=val|vxdefault> <maxrepeat=val|vxdefault> <difok=val|vxdefault> <pass_min_days=val|vxdefault> <pass_max_days=val|vxdefault> <pass_warn_age=val|vxdefault> <remember=val|vxdefault> <deny=val|vxdefault> <unlock_time=val|vxdefault> <fail_interval=val|vxdefault> Set the password policy on the system. Here setting the argument to vxdefault means no or None value.

security fips enable msdp Enable MSDP FIPS on cluster

security fips disable msdp Disable MSDP FIPS on cluster

security fips show Show the status of VxOS and MSDP FIPS on cluster

security lock Locks all the nodes in the cluster.

security stig enable [force] Enable the STIG on all nodes in the cluster. Force option ignores the prerequisites for enabling the STIG.

security stig precheck Check for the prerequisites for STIG enablement

security stig show Show the status of STIG on cluster

security otp generate Generates the otp for all the running nodes on the cluster.

security otp show Shows the otp set on the management node.

stat sys [*node*] Display system-related statistics.

stat cluster Display cluster-wide statistics.

stat dmp [*node*] Display DMP-related statistics.

stat fsio [*fsname*] Display filesystem IO statistics.

stat all [*node*] Display system and DMP-related statistics at a time.

stat rdma [*node*] Display rdma statistics.

20.1.4 SEE ALSO

banner(1), clock(1), ntp(1), option(1), otp(1), password-rules(1), stat(1), license(1), kms(1)

20.2 banner

20.2.1 SYNOPSIS

```
banner get
banner set
```

20.2.2 DESCRIPTION

The system `banner` command provides the facility to display and set the system banner. The maximum limit for header text is 250 characters and body text is 4000 characters. The banner cannot be set when the STIG is enabled on the system.

20.2.3 OPTIONS

`banner get` Display the system banner.

`banner set` Set the system banner.

20.2.4 EXAMPLES

1) Display the system banner.

```
accessclus.System> banner get
************************
This is sample header.
************************

This is body line 1.
This is body line 2.
```

2) Set the system banner.

```
accessclus.System> banner set
Enter Header (Type <enter> and <Ctrl + d> to complete the body. Max 250 characters)
This is sample header.

Enter Body (Type <enter> and <Ctrl + d> to complete the body. Max 4000 characters)
This is body line 1.
This is body line 2.
```

20.2.5 SEE ALSO

system(1)

20.3 clock

20.3.1 SYNOPSIS

`clock show`

`clock set` *time day month year*

`clock timezone` *region/timezone*

`clock regions` [*region*]

20.3.2 DESCRIPTION

The system `clock` commands set or show the date and time of the system, including the time zones and the list of regions. Changing cluster time is dangerous and may affect replication,DST,snapshot and other functionalities.

Note: `clock timezone` *timezone* is deprecated. It can still be used but output may not be accurate for regions sharing timezones.

20.3.3 OPTIONS

`clock show` Display the current time and date of the system.

`clock set` ***time day month year***

Set the current date and time of the system. The format of time, day, month, and year is given below.
time : HH:MM:SS using a 24 hour clock *day* : 1..31 *month* : January | February | March | April | May | June | July | August | September | October | November | December *year* : YYYY

`clock timezone` ***region/timezone*** Set the timezone to the specified name of the time zone for the region.

`clock regions` **[*region*]** Display the list of regions. Regions can be one of the following:

```
{ Africa, America, Asia, Australia, Canada, Europe, GMT-offset, Pacific,␣
↪US }
```

20.3.4 EXAMPLES

Display the current date and time.

```
System> clock show
Mon Jul 13 07:10:39 EDT 2009
```

Set 1 January 2014 on all the nodes.

```
System> clock set 13:00:00 1 January 2014
```

List all of the timezones in region `Asia`.

```
System> clock regions Asia
```

Set `Asia/Calcutta` as the timezone.

```
System> clock timezone Asia/Calcutta
```

20.3.5 SEE ALSO

ntp(1)

20.4 config

20.4.1 SYNOPSIS

`config export local` *file_name*

`config export remote` *URL*

`config delete` *file_name*

`config list`

20.4.2 DESCRIPTION

The system `config` command exports the Veritas Accessconfiguration settings. The default value: `all` will be setted if you leave `config_type` as blank.

`Config Name` `Config information`

`==========` `==========`

`admin:` List of users, passwords. This includes cifs local users/groups also.

`network:` DNS, LDAP, NIS, netgroup, nsswitch settings (does not include IP).

`report:` Report settings.

`system:` NTP settings, timezone and system options like cfsmount_ontimeout,dmpio,dmptune,nfsd,ninodes,tunefstab,vxtune.

`all:` All the configuration information.

`all_except_cluster_specific:` All except the cluster-specific configuration.

`nfs:` NFS settings.

`backup:` NBU client and NDMP configuration

`cifs:` CIFS settings.

`replication:` Replication settings.

`storage_schedules:` **Imports dynamic storage tiering (DST) and automated** snapshot schedules.

`cluster_specific:` **Public IP addresses, virtual IP addresses, and console** IP address. The network connection to the console server may be lost after importing these settings. If this happens, reconnect after importing this configuration.

`storage_fs_alert:` File system alert settings.

`compress_schedules:` Compression schedules.

`defrag_schedules:` Defragmentation schedule.

`dedupe:` Deduplication configuration.

20.4.3 OPTIONS

`config export local` *file_name*

Save the configuration in a local file.

`config export remote` *URL*

Save the configuration on a remote machine. Exported File is named export.tar.gz if no file name is specified in the URL. `Note`: When exporting files with ftp URL, the given path is considered relative to the current working directory of the session. For example, to get the file named README from your home directory on your ftp site, use:

```
ftp://user:passwd@my.site.com/README
```

But if you want to get the README file from the root directory of the site, you need to specify the absolute file name:

```
ftp://user:passwd@my.site.com//README
```

(i.e. with an extra slash in front of the file name.)

`config delete` *file_name*

Delete the locally-saved configuration file.

`config list`

View the list of locally-saved configuration files.

20.4.4 EXAMPLES

Export the configuration into a file with the name 2014_July_20.

```
System> config export local 2014_July_20
```

Export (or save) the configuration onto a remote machine.

```
System> config export remote
scp://root@10.209.105.138:/root/2014_July_20.tar.gz
or  ftp://root@10.209.105.138://home/user1/2014_July_20.tar.gz
Password: *******
```

20.4.5 SEE ALSO

upgrade(1)

20.5 fips

20.5.1 SYNOPSIS

```
fips enable msdp

fips disable msdp

fips show
```

20.5.2 DESCRIPTION

OPTIONS The `system security fips` command provides the facility to manage MSDP FIPS and view VxOS and MSDP FIPS mode on the system. This command can be used to enable and disable MSDP FIPS mode. The Federal Information Processing Standards (FIPS) define U.S. and Canadian Government security and interoperability requirements for computer systems. The FIPS 140-2 standard specifies the security requirements for cryptographic modules. It describes the approved security functions for symmetric and asymmetric key encryption, message authentication, and hashing. For security reasons, it is recommended that you do not disable the MSDP FIPS mode once you enable it. FIPS must be enabled on all the NetBackup components to establish a connection. When the FIPS mode is not enabled, communication can occur between the NetBackup clients and the servers that have previously supported NetBackup versions.

20.5.3 OPTIONS

20.5.4 EXAMPLES

1) Enable MSDP FIPS

When all the prerequisites are met

```
accesscluster.System> security fips enable msdp
It is recommended to stop all backup jobs manually before updating FIPS mode.
Restarting the Veritas Data Deduplication service.
Successfully enabled FIPS mode.
Restart NetBackup services (media/master - servers and clients) for FIPS mode to come␣
↪into effect.
```

2) Disable MSDP FIPS

When all the prerequisites are met

```
accesscluster.System> security fips disable msdp
It is recommended to stop all backup jobs manually before updating FIPS mode.
Restarting the Veritas Data Deduplication service.
Successfully disabled FIPS mode.
Restart NetBackup services (media/master - servers and clients) for FIPS mode to come␣
↪into effect.
```

3) Show VxOS and MSDP FIPS mode.

When all the precheck conditions are met

```
accesscluster.System> security fips show
Cluster status
==============
```

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```
MSDP: Enabled
VxOS: Enabled

Node                    VxOS     MSDP
=================       =======  =======
accesscluster-node-01   Enabled  Enabled
accesscluster-node-02   Enabled  Enabled
```

20.5.5 SEE ALSO

system(1)

20.6 gui_clientcertificate

20.6.1 SYNOPSIS

`gui_serverCertificate status`

`gui_clientcertificate enable` *ocsp_url(Online certificate status protocol) certificate_issuer*

`gui_clientcertificate remove`

20.6.2 DESCRIPTION

The system `gui_clientcertificate` commands are used to Enable or Disable certificate authentication on client browser.

20.6.3 OPTIONS

`gui_clientcertificate authentication status` Display if certificate authentication is enabled or disabled on the client browser.

`gui_clientcertificate authentication enable` ***ocsp_url(Online certificate status protocol) certificate_issuer***

Enable certificate client authentication against the external certificate added on GUI Management Server and restar
ocsp_url : OCSP(Online certificate status protocol) URL for client certificate validation. *certificate_issuer* : Specify 'URL' to download the certificate issuer or 'Path' to the issuer certificate(.pem) or 'None' if no issuer certificate.

`gui_clientcertificate authentication disable` Disable certificate client authentication and allow the client to use user credentials (Username and password) to authenticate.

20.6.4 EXAMPLES

Display if client authentication is enabled or disabled.

```
System> gui_clientcertificate authentication status
Client certificate authentication is enabled
```

Enable certificate authentication on client browser.

```
System> gui_clientcertificate authentication enable
Please enter a valid OCSP URL for client certificate validation:
Certificate issuer. Specify URL to download certificate issuer, Path to specify full␣
↪path of the issuer certificate(.pem), None if no issuer certificate:
```

Disable certificate authentication on client browser.

```
System> gui_clientcertificate authentication disable
This command will restart the GUI server.
Client certificate authentication is disabled and the server is restarted
```

20.7 disable

20.7.1 SYNOPSIS

`guidisable`

20.7.2 DESCRIPTION

The `guidisable` command disables the GUI.

20.7.3 OPTIONS

`guidisble` Disable the GUI.

20.7.4 EXAMPLES

Disable the GUI.

```
System> guidisable
Force stopping vamgmt service.
vamgmt service is not running.
```

20.7.5 SEE ALSO

guidisable(1)

20.8 enable

20.8.1 SYNOPSIS

`guienable`

20.8.2 DESCRIPTION

The `guienable` command enables or starts the GUI.

20.8.3 OPTIONS

`guienable` Start or enable the GUI.

20.8.4 EXAMPLES

Enable the GUI console.

```
System> guienable
Start vamgmt service vamgmt...
vamgmt service is running.
```

20.8.5 SEE ALSO

guienable(1)

20.9 gui_serverCertificate

20.9.1 SYNOPSIS

`gui_serverCertificate status`

`gui_serverCertificate add` *key certificate certificate_issuer*

`gui_serverCertificate remove`

20.9.2 DESCRIPTION

The system `gui_serverCertificate` commands are used to enable GUI Management Server to use external certificates.

20.9.3 OPTIONS

`gui_serverCertificate status` Display the type of certificate (self-signed or external certificate), which is being used on the GUI Management server.

`gui_serverCertificate add` ***key certificate certificate_issuer***

Add or enable the GUI Management Server to use an external certificate and restart the GUI Management. *key* : Full Path to the server key(.pem) file. *certificate* : Full path to the server certificate(.pem) file. *certificate_issuer* : Specify 'URL' to download the certificate issuer or 'Path' to the issuer certificate(.pem) or 'None' if no issuer certificate.

`gui_serverCertificate remove` Remove the external certificate and restart the GUI Management Server.

20.9.4 EXAMPLES

Display what type of certificate is being used.

```
System> gui_servercertificate status
GUI Server is using the self-signed certificate
```

Add/Enable external certificate on GUI Management Server.

```
System> gui_servercertificate add
This command will restart the GUI server.
Enter the full path to key(.pem) file:
Enter the full path to certificate(.pem) file:
Certificate issuer. Specify URL to download certificate issuer, Path to specify full␣
↪path of the issuer certificate(.pem), None if no issuer certificate:
Enter the full path to the certificate of the issuer(.pem):
Key and Cert file added successfully. Restarting the server.
GUI Server is restarted successfully
```

Remove external certificate on GUI Management Server.

```
System> gui_servercertificate remove
This command will restart the GUI server.
Certificates removed successfully. Restarting the server.
GUI Server is restarted successfully
```

20.10 status

20.10.1 SYNOPSIS

```
guistatus
```

20.10.2 DESCRIPTION

The `guistatus` command is used to check the status of the GUI.

20.10.3 OPTIONS

`guistatus` Check the status of the GUI console.

20.10.4 EXAMPLES

Check the status of the GUI console.

```
System> guistatus
Checking service vamgmt...
vamgmt service is not running.
```

20.10.5 SEE ALSO

guistatus(1)

20.11 kms

20.11.1 SYNOPSIS

```
kms config list
kms config status
kms config server server_ip server_port
kms config delete
kms certificate generate
kms certificate import_server_cert
kms certificate import_client_key
kms certificate import_client_cert
```

20.11.2 DESCRIPTION

The system `kms` commands are used to register or unregister the cluster with the KMS server.

20.11.3 OPTIONS

`kms config list` Display the registered KMS server details.

`kms config status` List the status of SSL certificate files that are configured on the cluster.

`kms config server` ***server_ip server_port*** Register the KMS server with cluster.

`kms config delete` Delete the KMS server details.

`kms certificate generate` Generate SSL self-signed keypair on cluster. It is advised that cluster nodes' time settings are synchronized with NTP server before generating self-signed certificates.

`kms certificate import_server_cert` Import the KMS servers public key.

`kms certificate import_client_key` Import the SSL key file of the cluster that is used in CSR.

`kms certificate import_client_cert` Import the CA signed public key of the cluster.

20.11.4 EXAMPLES

Display registered KMS server details.

```
System> kms config list
Configured KMS server host: 10.182.65.65
Configured KMS server port: 5696
```

Register KMS server 10.182.65.65 on cluster. Note: We need to import and generate SSL keypair with KMS server certificate file import before runinng "kms config server" command. KMS servers with OASIS KMIP 1.1 specification are supported.

```
System> kms config server 10.182.103.113 5696
100% [#] KMS server register with cluster nodes.
ACCESS kms SUCCESS V-288-0 KMS server registered successfully.
```

Display the configuration status of KMS server communication related SSL certificates.

```
System> kms config status
ACCESS kms SUCCESS V-288-0 KMS server certificate file imported.
```

To unregister KMS server on cluster.

```
System> kms config delete
ACCESS kms SUCCESS V-288-0 Successfully unregistered KMS server.
```

To generate a self-signed SSL keypair for the cluster.

```
System> kms certificate generate
ACCESS kms SUCCESS V-288-0 Self-signed certificates successfully generated.
```

To import the KMS server's public key on the cluster. **Note:** We need to generate/import the SSL keypair for the cluster before this operation.

```
System> kms certificate import_server_cert
================================================================
       Please enter KMS Server certificate details
================================================================

Enter KMS Server public key certificate identified by
-----BEGIN CERTIFICATE-----
... (KMS Server certificate in base64 encoding) ...
-----END CERTIFICATE-----


-----BEGIN CERTIFICATE-----
MIICyDCCAbCgAwIBAgIHAdBRB9i6bzANBgkqhkiG9w0BAQsFADATMREwDwYDVQQD
EwhJQk0gU0tMTTAeFw0xNzAzMDExMjM1NDJaFw00MTEwMjExMjM1NDJaMBMxETAP
BgNVBAMTCElCTSBTS0xNMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
uu+FjPQEePp92wugJhV4I2V/ADyfgtxD/kcaCWf3pCfKZlLp0Py9F6TSnDIrvZHl
xI6aL9UUieR9f4xjjoNt2yEJ/nWxu/9eu3yqGDkf7GyEoo8aWDki+ewGSCmaI1xC
8lE0+gNbpaDPl7Xbk9WqMELHo2+6+wVmie9Kx6VuQsYvF1ZIeOmdw8Zjcxc8uxWj
b8PjrqHXrVb9DEAP/kAe/KdkwRMDSEhzBUz/Of6ZVMCivrBI8ItqLS3wzWwAGf+K
L7+D8iVmrnPmt9QAcAl2EWhThNWAc/IR+88l+bdTfsH6L5d7fYmisLv2pDg0VWkN
8fvM9JeWDxmUSaO8SkzHHQIDAQABoyEwHzAdBgNVHQ4EFgQUnvpjLMIMq8lzG6rN
n4KVZhmWW6YwDQYJKoZIhvcNAQELBQADggEBAJPQ4xoOgWDadQjRbXBzl0bxg8fB
aH3ka5OBSQJOHo4eVg3LFlQ3Fd8D6l9We7M03KxURKp7S1u2HyUjJCPZbfS2X6IR
qn8ynY2GjAuFqp0sAIFAiE7LSN4IUkqSiGCESiQQNWpTF9yTJo8KaWuUBqw1onFl
YAu/C0csx/nzYdbSMY4qsrL+CHmM5ALHxh9PTQfndvtngge2DEXZr4nwxsS8athE
S4tZ9rJ8KqVuzrpwgsMVn5x913tU2+UmFJacTm/BvKAIWC8LHQihCOdDUDRcSf48
b2SzdUF3SCMKHMETKcFEB7s5mm3Uo9NP+NLRM6RNFwwg1nyEGsFVyQ/ZwXk=
-----END CERTIFICATE-----

ACCESS kms SUCCESS V-288-0 Successfully imported KMS server certificate.
```

To import the cluster's SSL key file used during CSR creation.

```
System> kms certificate import_client_key
================================================================
```

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```
       Please enter client keyfile details
================================================================

Enter client's private key identified by
-----BEGIN RSA PRIVATE KEY-----
... (Client key in base64 encoding) ...
-----END RSA PRIVATE KEY-----


-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAncilNq/YBjwEervKIMFwjwExdePxlJjb5Ym0MVG9W+TmGwvW
4e47WCXCubZp93jfVQ4HfjR+mzI4ARcBrFbh9hivuwrZj8NF2IzUUxHPeuGlQMmZ
H8bIzA5mkZQL+4WAUKblZnDZrQCayBYHYJZk4Xo3GG0qZeU53gIni1QaNToDsYQB
hKlftjb+A/KB5GsfZJJoRdcSnd5az16+sxa//r1bKL7J76NIYJRR6x2UXHrXTvG9
Pq+ciCV8mfTjW4T+oBylCb8o3bUxGdFlBtEFwhiDZwtO/gCkL2qiCbQxcXGdWjTc
0+BeUwN4wJwnXbcJ4qwdAKBZANQYQ2MWCPId1QIDAQABAoIBADKLTfGAzxDgNQck
FRH9JZOJ7FA5nu/dL8QOIr0R1DkV0GilmEZzzGrmXcSkHLn77H8QqXHSWyRYJ/yh
ZBXTFzuAmPqv9RXKlhtSscmSkQZqNkfUzMqTIUvM6SqFZHlEQOCVNjNkvzZeVTb3
Z5GXW+WnAvM+NTDDB5CI3CYT4PlfhXy+Glij6dlp0rhyJsun0qpjKoFqQzLpGhXm
IgAnfBZ8nDQbxODM9N9rb30ry+j/f3SlNEX6hhNkbD1lbT/uQmz2RSceFzkLned0
JG7NMPZQQqhxu2l0GPAUoLqopjp4JL85Xk/a4rXBRAL4tN1SRX9B803TkXXuaWU7
qktUelkCgYEAy6jtEqWjYhCxpSOVsl1LNaPkY4B1LBGktBUkhyCcuvFZ5AohCuNi
/lQNkk18xgdnbDoycB7v0s9CG5S4Po1ydOg9cfXDmr8kf98Bip9HjorPVmE6RZDT
la8TkOcm5GtJIgXsnNaLUuxKws/i4SZ1N4vxhhQcgU1OF1odHT9kit8CgYEAxlV3
HjL2pRPt0snRRbCNXLb5tTXmH9hWE1CNSJdoxkc0KzD0zJOCMHxdmFHEG0Q7JANN
RssKStt21TTrWdgmjlyH1zEcbQkX9eSf2+3rQ53+K9Gx3u2iFum5wUXyR8qZKdtd
kha61TQXrhvhr+NsBvMDbe42Jr+lU2t97GkW4csCgYBKrkdA7zxaWYTK6aGbJlrN
8KtvUUumPVIINziN1IekhZxQ4uX6+Cb03B2d6Iw4kb57EVwtgSqwQxAazQ5C4dt2
wzLE9zojJLRdr4kBLCcxPfWJ111m5RSxbuHd4OWCHVVUBJgfawzr+3nutgycQ134
YHjQkc9iGtbn+UNz1isoQQKBgCMjYy5DgzUt+bWdsejx5ammdUkomnPL5TwYyl8x
DAwM824vhz9zZt5mOkLRQbg+92di+l7vfAxVI5GUhZnuVK5mMF7swYeD0+3pqnTR
ixv4st5akXPYkB4VHKbkWI9lkos65TILuuApEYT0RaDe3vXAOjxQtuFYlNbZtX6c
A8TPAoGAZ7YvcRluDT7mRNWa+EOTslJ1/POvtvnH5Yw/+n+C0vpBiyy1Zxaa0zyq
7R/aD9ejEZEIo7n/tWPCgvI6VvBz0+Jz6UIm2p1TtPuJcMjxP4Vnnbp7qfUmhC7M
WXVRlyTgSxqYhexAkG4SaQ0nPTnrnfxL1f6kMoHob+qeL705NDA=
-----END RSA PRIVATE KEY-----

ACCESS kms SUCCESS V-288-0 Client key file successfully imported.
```

To import the cluster's SSL certificate file signed by CA.

```
System> kms certificate import_client_key
================================================================
       Please enter KMS Server certificate details
================================================================

Enter KMS Server public key certificate identified by
-----BEGIN CERTIFICATE-----
... (KMS Server certificate in base64 encoding) ...
-----END CERTIFICATE-----


-----BEGIN CERTIFICATE-----
MIICyDCCAbCgAwIBAgIHAdBRB9i6bzANBgkqhkiG9w0BAQsFADATMREwDwYDVQQD
EwhJQk0gU0tMTTAeFw0xNzAzMDExMjM1NDJaFw00MTEwMjExMjM1NDJaMBMxETAP
BgNVBAMTCElCTSBTS0xNMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
uu+FjPQEePp92wugJhV4I2V/ADyfgtxD/kcaCWf3pCfKZlLp0Py9F6TSnDIrvZHl
```

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```
xI6aL9UUieR9f4xjjoNt2yEJ/nWxu/9eu3yqGDkf7GyEoo8aWDki+ewGSCmaI1xC
8lE0+gNbpaDPl7Xbk9WqMELHo2+6+wVmie9Kx6VuQsYvF1ZIeOmdw8ZjcxC8uxWj
b8PjrqHXrVb9DEAP/kAe/KdkwRMDSEhzBUz/Of6ZVMCivrBI8ItqLS3wzWwAGf+K
L7+D8iVmrnPmt9QAcAl2EWhThNWAc/IR+88l+bdTfsH6L5d7fYmisLv2pDg0VWkN
8fvM9JeWDxmUSaO8SkzHHQIDAQABoyEwHzAdBgNVHQ4EFgQUnvpjLMIMq8lzG6rN
n4KVZhmWW6YwDQYJKoZIhvcNAQELBQADggEBAJPQ4xoOgWDadQjRbXBzl0bxg8fB
aH3ka5OBSQJOHo4eVg3LFlQ3Fd8D6l9We7M03KxURKp7S1u2HyUjJCPZbfS2X6IR
qn8ynY2GjAuFqp0sAIFAiE7LSN4IUkqSiGCESiQQNWpTF9yTJo8KaWuUBqw1onFl
YAu/C0csx/nzYdbSMY4qsrL+CHmM5ALHxh9PTQfndvtngge2DEXZr4nwxsS8athE
S4tZ9rJ8KqVuzrpwgsMVn5x913tU2+UmFJacTm/BvKAIWC8LHQihCOdDUDRcSf48
b2SzdUF3SCMKHMETKcFEB7s5mm3Uo9NP+NLRM6RNFwwg1nyEGsFVyQ/ZwXk=
-----END CERTIFICATE-----

ACCESS kms SUCCESS V-288-0 Successfully imported KMS server certificate.
```

20.12 license

20.12.1 SYNOPSIS

`license add` *<path_of_key_file>*

`license list`

`license list details`

20.12.2 DESCRIPTION

The `license` commands provide options to perform necessary operations related to licensing. It adds or installs a license. It lists the type of license installed on the cluster. It also gives details of the installed license.

20.12.3 OPTIONS

`license add` ***<path_of_key_file>*** Adds or installs the license using the .slf key file which is provided. The scp protocol is also supported for adding license. The scp path should be specified: scp://user@ip:<path_of_key_file>

`license list` Lists the type of license installed on the cluster. The license type can be trialware (trial license for 60 days), subscription (license with validity of 1 year) or perpetual (permanent license).

`license list details` Lists the details of the license installed on the cluster such as the product name, version, start date, end date, license type, current state etc.

20.12.4 EXAMPLES

Adding license using local **.slf** file.

```
System>license add /home/user1/subscription.slf
ACCESS license SUCCESS V-288-0 License installed successfully on all nodes of the␣
↪cluster.
```

Using scp for installing license.

```
System>license add scp://user1@10.50.148.208:/home/user1/subscription.slf
user1@10.50.148.208's password:
ACCESS license SUCCESS V-288-0 License installed successfully on all nodes of the␣
↪cluster.
```

When license installation fails.

```
System>add /home/user1/key.slf
ACCESS license ERROR V-288-0 Input License file not properly installed on all the␣
↪nodes; Successfully installed on 0 out of 2 nodes; Installation failure on: ['isaA_
↪01', 'isaA_02']
```

When an error occurs while fetching the license information.

```
System>license list
ACCESS license ERROR V-288-0 Could not retrieve license information due to internal␣
↪error
```

When a license is installed and the `license list details` command is used.

```
System>license list details
Product Name    Version   Product Edition   License Meter   License Type   Start Date␣
↪  End Date   State
==============  ========  ================  ==============  ============= ␣
↪===========  =========  ======
Veritas Access  7.2.1     ENTERPRISE        PER-CORE        PERPETUAL      NA          ␣
↪  NA         Active
```

When subscription license is installed on the entire cluster

```
System>license list
Installed License Type
======================
SUBSCRIPTION

System>license list details
Product Name    Version   Product Edition   License Meter   License Type   Start Date␣
↪  End Date    State
==============  ========  ================  ==============  ============= ␣
↪===========  ==========  ======
Veritas Access  7.3       ENTERPRISE        PER-CORE        SUBSCRIPTION   2017-05-25␣
↪  2018-07-24  Active
```

When the license is installed only on some nodes of the cluster or licensing information from some nodes cannot be fetched as the nodes are down or not reachable.

```
System>license list
Installed License Type
======================
SUBSCRIPTION

ACCESS license WARNING V-288-0 License is partially installed on this cluster. For␣
↪more details refer to the Veritas Access GUI.

System>license list details
Product Name    Version   Product Edition   License Meter   License Type   Start Date␣
↪  End Date    State
==============  ========  ================  ==============  ============= ␣
↪===========  ==========  ======
Veritas Access  7.3       ENTERPRISE        PER-CORE        SUBSCRIPTION   2017-05-25␣
↪  2018-07-24  Active

ACCESS license WARNING V-288-0 License is partially installed on this cluster. For␣
↪more details refer to the Veritas Access GUI.
```

When a license is not installed on the cluster

```
System>license list
ACCESS license WARNING V-288-0 No license is installed on this cluster.


System>license list details
ACCESS license WARNING V-288-0 No license is installed on this cluster.
```

20.13 lock

20.13.1 SYNOPSIS

```
system security lock
```

20.13.2 DESCRIPTION

The `system security lock` command locks all the nodes in the cluster.

20.13.3 OPTIONS

`system security lock` Locks all the nodes in the cluster.

20.13.4 EXAMPLES

When all the nodes are in unlock mode

```
accessclus> system security lock
ACCESS OTP SUCCESS V-493-10-5280 All the nodes are locked.
```

20.13.5 SEE ALSO

system(1)

20.14 more

20.14.1 SYNOPSIS

```
more status
more enable
more disable
```

20.14.2 DESCRIPTION

The system `more` command enables, disables, or checks the status of the more filter. If this command is enabled, then it activates the more filter for paging through text one screen at a time. By default, the more filter is enabled on all of the nodes in the cluster. The more disable command deactivates the more filter on all of the nodes in the cluster.

20.14.3 OPTIONS

`more status` Display the status of the more filter.

`more enable` Enable the more filter on all of the nodes in the cluster.

`more disable` Disable the more filter on all of the nodes in the cluster.

20.14.4 EXAMPLES

Show the status of the more filter.

```
System> more status
Status  : Enabled
```

Enable the more filter on all of the nodes.

```
System> more enable
ACCESS more Success V-288-0 more activated on console.
```

Disable the more filter on all of the nodes.

```
System> more disable
ACCESS more Success V-288-0 more deactivated on console.
```

20.15 ntp

20.15.1 SYNOPSIS

`ntp show`

`ntp enable`

`ntp servername` *server-name*

20.15.2 DESCRIPTION

The system `ntp` commands start, synchronize, or check the status of the NTP server.

20.15.3 OPTIONS

`ntp show` Display the NTP status and server names.

`ntp enable` Enable NTP on all of the nodes in the cluster.

`ntp servername` ***server-name*** Set the comma-separated list of NTP servers on all of the nodes in the cluster. Use *127.127.1.0* as the server name to set the local clock.

20.15.4 EXAMPLES

Display the NTP status and server name.

```
System> ntp show
Status     :    Disabled
Server Name:    127.127.1.0
```

Set `10.10.10.10` and `20.20.20.20` as the NTP server on all of the nodes.

```
System> ntp servername 10.10.10.10,20.20.20.20
ACCESS System INFO V-288-0 ['10.10.10.10', '20.20.20.20'] has been added into NTP␣
↪server.
```

Enable NTP on all of the nodes.

```
System> ntp enable
Enabling the NTP server.  Done
```

20.15.5 SEE ALSO

clock(1)

20.16 option

20.16.1 SYNOPSIS

`option show nfsd`

`option show cfsmount_ontimeout`

`option show lltpeerinact`

`option show dmpio`

`option show ninodes`

`option show tunefstab`

`option show dmptune`

`option show vxtune`

`option show vxfs`

`option modify nfsd` *number* [*nodename*]

`option modify cfsmount_ontimeout` *value*

`option modify lltpeerinact` *value*

`option modify dmpio` {enclosure *enclr_name* | arrayname
array_name | arraytype *{A/A|A/P|...}* }
iopolicy{adaptive | adaptiveminq | balanced
minimumq | priority | round-robin | singleactive}

`option modify ninodes` *{ number | Auto }*

`option modify tunefstab` *write_throttle value*

`option modify dmptune` {dmp_path_age *value* | dmp_health_time *value*}

`option modify vxtune` *volpagemod_max_memsz value*

`option modify vxtune` *vol_appio_threshold option*

`option modify vxfs` *vx_timelag value*

20.16.2 DESCRIPTION

The system `option` command is used to display and configure the tunable parameters. The description of the DMP I/O policy is as follows:

adaptive: In SAN environments, determines the paths that have the least delay, and schedules I/O on paths that are expected to carry a higher load. Priorities are assigned to the paths in proportion to the delay.

adaptiveminq: Similar to the adaptive policy, except that I/O is scheduled according to the length of the I/O queue on each path. The path with the shortest queue is assigned the highest priority.

balanced: Takes the track cache into consideration when balancing I/O across paths.

minimumq: Uses a minimum I/O queue policy. I/O is sent on paths that have the minimum number of I/O requests in the queue. This policy is suitable for low-end disks or JBODs where a significant track cache does not exist. This is the default policy for Active/Active (A/A-A) arrays.

priority: Assigns the path with the highest load-carrying capacity as the priority path. This policy is useful when the paths in a SAN have unequal performance, and you want to enforce load-balancing manually.

round-robin: Sets a simple round-robin policy for I/O. This is the default policy for Active/Passive (A/P) and Asynchronous Active/Active (A/A-A) arrays.

singleactive: I/O is channeled through the single active path. The optional attribute use_all_paths controls whether the secondary paths in an Asymmetric Active/Active (A/A-A) array are used for scheduling I/O requests in addition to the primary paths. The default setting is no, which disallows the use of the secondary paths.

20.16.3 OPTIONS

option show nfsd Display the number of NFS daemons for each node in a cluster.

option show cfsmount_ontimeout Display cfsmount online timeout.

option show lltpeerinact Display peer inactive timeout.

option show dmpio Display the type of iopolicy corresponding to enclosure, arrayname, arraytype for each node.

option show ninodes Display the global inode cache size.

option show tunefstab Display the global value of the write_throttle parameter.

option show dmptune Display the value of the dmptune attribute.

option show vxtune Display the tunable values of the volume.

option show vxfs Display the tunable parameters for VxFS.

option modify nfsd ***number*** **[*nodename*]** Modify the number of NFS daemons. The range for the number of daemons is from 1 to 512.

Warning: The `modify nfsd` command overwrites the existing configuration settings.

option modify cfsmount_ontimeout ***Value*** Modify cfsmount online timout. The range from 300 to 9000.

option modify lltpeerinact ***Value*** Modify peer inactive timeout. The range is from 100 to 36000. The default timeout value is 16 seconds.

option modify dmpio {enclosure ***enclr_name*** **| arrayname**

array_name **| arraytype** ***{A/A|A/P|...}*** **}** iopolicy{adaptive | adaptiveminq | balanced minimumq | priority | round-robin | singleactive}

Modify the dmpio policy corresponding to enclosure, arrayname, arraytype. Warning: Check the sequence before modifying the I/O policy. The policies need to be applied in the following sequence: arraytype, arrayname, and enclosure. The enclosure-based modification of the I/O policy overwrites the I/O policy set using the arrayname and the arraytype for that particular enclosure. In turn, the arrayname-based modification of the I/O policy overwrites the I/O policy set using the arraytype for that particular arrayname.

option modify tunefstab ***write_throttle value*** Modify the value of the write_throttle parameter.

option modify dmptune ***dmp_health_time value*** Modify the value of dmp_health_time. This attribute sets the time in seconds for which a path must stay healthy. If a path's state changes back from enabled to disabled within this time period, DMP marks the path as intermittently failing, and does not re-enable the path for I/O until dmp_path_age seconds elapse. The default value of dmp_health_time is 60 seconds. A value of 0 prevents DMP from detecting intermittently failing paths.

option modify dmptune ***dmp_path_age value*** Modify the value of dmp_path_age. The time for which an intermittently failing path needs to be monitored before DMP marks the path as healthy and once again attempts to schedule I/O requests on it. The default value is 300 seconds. A value of 0 prevents DMP from detecting intermittently failing paths.

option modify ninodes ***{ number | Auto }*** Modify the global inode cache size. The range for inode cache size is from 10000 to 8000000. Set to Auto to enable autoreset by VXFS.

Warning: The `modify ninodes` command requires a cluster-wide reboot.

option modify vxtune ***volpagemod_max_memsz value*** Modify the value of volpagemod_max_memsz. This is the maximum memory measured in kilobytes that is allocated for cache object metadata. The default value for volpagemod_max_memsz is set to 131072KB. The value that should be used is determined by the total size of volumes for which instant rollbacks are to be taken. The following formula can be used to calculate the required value of volpagemod_max_memsz:

size_in_KB=6 * (total_filesystem_size_in_GB) * (64/region_size_in_KB)

region_size can be set to 256KB by default for large filesystems.

option modify vxtune ***vol_appio_threshold option*** Modify the value of vol_appio_threshold. This specifies the acceptable impact on application IOs. Default value of the tunable is 20% i.e. latency degradation upto 120% of reference value is allowed. Maximum value for this is 100%. The options that can be provided are low and high. If user provides low option, this will set tunable value as 20% and if user provides high option, this will set tunable value as 100.

option modify vxfs ***vx_timelag value*** Modify the values of vx_ifree_timelag and vx_iclean_timelag .

vx_ifree_timelag

VxFS maintains an inode free list. If you configure the vx_ifree_timelag value as 30 seconds, the freelist is scanned every 30 seconds.

vx_iclean_timelag

This is the minimum time that an inode must be in the inode free list before the system reclaims it.

VALUE Specify an integer value (Unit: Seconds)

20.16.4 EXAMPLES

Show the value of the number of NFS daemons.

```
System> option show nfsd
NODENAME             NUMBER_DAEMONS
--------             --------------
sfs_01               66
```

Show cfsmount online timeout.

```
System> option show cfsmount_ontimeout
Resource            OnlineTimeout
--------          --------------
cfsmount               300
```

Show peer inactive timeout.

```
System> option show lltpeerinact
NODE          LLTPEERINACT
--------      ------------
sfs_01          1600
sfs_02          1600
```

Show the value of dmpio policy corresponding to enclosure, arrayname, arraytype.

```
System> option show dmpio
NODENAME             TYPE                ENCLR/ARRAY          IOPOLICY
--------             ---------           --------             --------
sfs_01               enclosure           disk                 Balanced
sfs_01               enclosure           aluadisk0            Priority
sfs_01               arraytype           A/A                  balanced
sfs_02               enclosure           disk                 Balanced
sfs_02               enclosure           aluadisk0            Priority
sfs_02               arraytype           A/A                  balanced
```

Show the value of the global inode cache size.

```
System> option show ninodes
INODE_CACHE_SIZE
----------------
565580
```

Show the value of the tunefstab parameters.

```
System> option show tunefstab
NODENAME             ATTRIBUTE           VALUE
--------             ---------           -----
sfs_01               write_throttle      0
```

Show the value of the dmptune parameters.

```
System> option show dmptune
NODENAME             ATTRIBUTE           VALUE
--------             ---------           -----
sfs_01               dmp_path_age        57
sfs_01               dmp_health_time     44
```

Show the value of the vxtune parameters.

```
System> option show vxtune
NODENAME          TUNABLE                          VALUE
--------          -------                        ---------
sfs_01            volpagemod_max_memsz             12288
sfs_02            volpagemod_max_memsz             12288
sfs_01            vol_appio_threshold              20
sfs_02            vol_appio_threshold              20
```

Modify the number of NFS daemons on all the nodes in a cluster.

```
System> option modify nfsd 97
```

Modify cfsmount online timeout.

```
System> option modify cfsmount_ontimeout 400
```

Modify peer inactive timeout.

```
System> option modify lltpeerinact 1600
```

Modify the dmpio policy, enclosure, and diskname.

```
System> option modify dmpio enclosure Disk Balanced
```

Modify the global inode cache size.

```
System> option modify ninodes 2000343
```

Enable inode cache size autoreset.

```
System> option modify ninodes Auto
```

Modify the write_throttle parameter of tunefstab.

```
System> option modify tunefstab write_throttle 20003
```

Modify the dmp_path_age parameter of dmptune.

```
System> option modify dmptune dmp_path_age 40
```

Modify the dmp_health_time parameter of dmptune.

```
System> option modify dmptune dmp_health_time 50
```

Modify the volpagemod_max_memsz parameter of vxtune

```
System> option modify vxtune volpagemod_max_memsz 12288
VXTUNE    - set volpagemod_max_memsz as 12288(KB)

System> option modify vxtune volpagemod_max_memsz 54533443234
VXTUNE    - VxVM vxtune ERROR V-5-1-18394 Tunable value 54533443234 for tunable␣
↪volpagemod_max_memsz is out of range [0 - 4294967295]

System> option modify vxtune vol_appio_threshold high
VXTUNE    - set vol_appio_threshold as 100 (by percentage)

System> option modify vxtune vol_appio_threshold low
VXTUNE    - set vol_appio_threshold as 20 (by percentage)
```

20.16.5 SEE ALSO

clock(1), ntp(1), stat(1), swap(1)

20.17 otp

20.17.1 SYNOPSIS

```
otp generate
otp show
```

20.17.2 DESCRIPTION

The `system otp` command provides the facility to generate and show the OTP on the cluster. This OTP is used to generate the security key and passphrase which are required to unlock the node from appliance clish.

20.17.3 OPTIONS

`otp generate` Generates the otp for all the running nodes on the cluster.

`otp show` Shows the otp set on the management node.

20.17.4 EXAMPLES

1) Show OTP.

a) When no OTP is set.

```
accessclus> system security otp show
ACCESS OTP INFO V-493-10-0 No OTP is generated
```

b) When OTP is set.

```
accessclus> system security otp show
OTP         Created time                          Expire time
==========  ====================================  ␣
↪===================================
3297901348  Thursday, 12 August 2021 08:53:19 PM  Thursday, 12 August␣
↪2021 10:53:19 PM
```

2) Generate OTP.

a) In normal case

```
accessclus> system security otp generate
OTP : 3297901348
```

20.17.5 SEE ALSO

system(1)

20.18 password-policy

20.18.1 SYNOPSIS

```
password-policy get
```

password-policy set <minlen=val|vxdefault> <ucredit=val|vxdefault> <maxclassrepeat=val|vxdefault> <dcredit=val|vxdefault> <ocredit=val|vxdefault> <minclass=val|vxdefault> <lcredit=val|vxdefault> <maxrepeat=val|vxdefault> <difok=val|vxdefault> <pass_min_days=val|vxdefault> <pass_max_days=val|vxdefault> <pass_warn_age=val|vxdefault> <remember=val|vxdefault> <deny=val|vxdefault> <unlock_time=val|vxdefault> <fail_interval=val|vxdefault>

20.18.2 DESCRIPTION

The `password-policy` command provides the facility to display and set the system password policy. The password policy cannot be set when the STIG is enabled on the system.

20.18.3 OPTIONS

password-policy get Get the password policy of the system.

password-policy set <minlen=val|vxdefault> <ucredit=val|vxdefault> <maxclassrepeat=val|vxdefault> <dcredit=val|vxdefault> <ocredit=val|vxdefault> <minclass=val|vxdefault> <lcredit=val|vxdefault> <maxrepeat=val|vxdefault> <difok=val|vxdefault> <pass_min_days=val|vxdefault> <pass_max_days=val|vxdefault> <pass_warn_age=val|vxdefault> <remember=val|vxdefault> <deny=val|vxdefault> <unlock_time=val|vxdefault> <fail_interval=val|vxdefault> Set the password policy on the system. Here setting the argument to vxdefault means no or None value.

20.18.4 EXAMPLES

1) Display the system password policy.

```
accessclus> system password-policy get
Password policy setup on the system...

Password complexity:
====================
Minimum characters:                                    15
Minimum upper case characters:                         1
Maximum repetitive characters of the same class:       4
Minimum numbers:                                       1
Minimum special characters:                            1
Minimum character classes:                             4
Minimum lower case characters:                         1
Maximum repetitive characters:                         2
Character difference with old password:                8

Password age:
=============
Days after which password can be changed:              1
Days after which password must be changed:             60
Days before warning message:                           7
Minimum different password before allowing reuse:      7
```

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```
Password lockout:
================
Number of incorrect login attempts before lockout:              3
Time before locked account is reenabled(seconds):               604800
Time before login failures before account locked out(seconds):  900
```

2) Set the system password policy.

```
    accessclus> system password-policy set minlen=15 ucredit=vxdefault
            maxclassrepeat=vxdefault dcredit=vxdefault ocredit=vxdefault
            minclass=5 lcredit=vxdefault maxrepeat=3 difok=vxdefault
            pass_min_days=vxdefault pass_max_days=vxdefault pass_warn_age=vxdefault
            remember=vxdefault deny=3 unlock_time=vxdefault fail_interval=vxdefault
Access Appliance password-policy SUCCESS V-493-10-0 Password policy updated␣
↪successfully.
```

20.18.5 SEE ALSO

system(1)

20.19 stat

20.19.1 SYNOPSIS

`stat sys` [*node*]

`stat dmp` [*node*]

`stat fsio` [*fsname*]

`stat cluster`

`stat all` [*node*]

`stat rdma` [*node*]

20.19.2 DESCRIPTION

System `stat` command displays the system, DMP, and process-related node-wide statistics. The load in the displayed output is the load from the last 1, 5, and 15 minutes. Intr is the total number of interrupt counts, and ctxt is the total number of context switches that occurred after a reboot.

The stat command cluster option displays I/O and network throughput at the entire cluster level.

20.19.3 OPTIONS

`stat sys` [*node*]

Display system-related statistics. *node* : name of a node in the cluster.

`stat dmp` [*node*]

Display DMP-related statistics. *node* : name of a node in the cluster.

`stat fsio` [*fsname*]

Display filesystem IO statistics. *fsname* : name of the filesystem.

`stat cluster` Display cluster IO and network throughput.

`stat all` [*node*]

Display system and DMP-related statistics of all the nodes or a node in the cluster at a time. *node* : name of a node in the cluster.

`stat rdma` [*node*]

Display RDMA statistics of all the nodes or specific node(s) in the cluster at a time. *node* : name of node(s) in the cluster.

20.19.4 EXAMPLES

Display system-related statistics of node1.

```
System> stat sys node1
Gathering statistics...
GEN STAT :::
============
```

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```
CPU Idle   : 99.450     Load 1  : 1.020
CPU System : 0.050      Load 5  : 1.020
CPU User   : 0.050      Load 15 : 1.010
ctxt       : 184128974    intr    : 392690761  processes(R) : 1009379

MEM STAT :::
============
Mem Total : 4040096    Swap total : 1052248     %Mem used  : 49.610%
Mem Used  : 2004100    Swap Used  : 0           %Swap Used : 0.000%
Mem Free  : 2035996    Swap Free  : 1052248     %Total use : 49.610%
NET STAT :::
============
IFACE      rxmb/s    txmb/sec  rxerr/s   txerr/s   coll/s    rxdrop/s  txdrop/s  dev_
↪speed Mode
------     -----     --------  -------   -------   ------    --------- --------   -----
↪---- -----
pubeth0    0.000     0.000     0.000     0.000     0.000     0.000     0.000     1000␣
↪     Full
priveth0   0.000     0.000     0.000     0.000     0.000     0.000     0.000     1000␣
↪     Full

DISK STAT :::
=============
                      OPERATIONS          BLOCKS           AVG TIME(ms)
TYP NAME              READ     WRITE      READ     WRITE   READ  WRITE
dm  Disk_0               0         0         0         0    0.0    0.0
dm  Disk_1               0         0         0         0    0.0    0.0
dm  Disk_2               0         0         0         0    0.0    0.0
dm  Disk_3               0         0         0         0    0.0    0.0
```

Display consolidated system-related statistics of all running nodes in the cluster.

```
System> stat sys
Gathering statistics...
Node       %cpu_util %mem_util av_read_time(ms) av_write_time(ms) rx_av_pubeth(mb/s)␣
↪tx_av_pubeth(mb/s)
----       --------- --------- ---------------- ----------------- ------------------ --
↪-----------------
node1      0.800     49.680    0.000            0.000             0.000                0.
↪000
node2      0.150     50.110    0.000            0.000             0.000                0.
↪000
```

Display DMP-related statistics of node1.

```
System> stat dmp node1
DMP STAT :::
============
                          OPERATIONS            KBYTES            AVG TIME(ms)
PATHNAME                READS     WRITES      READS     WRITES     READS   WRITES
sda                       978          0         23          0 65.695652 0.000000
sdf                       477        155      98631       1028  0.285174 0.715953
sdd                       457        186      92455       1264  0.266043 0.471519
sdg                      3043         63      67010        502  2.804343 0.364542
sde                      6096        147      95382       1003  4.512057 0.664008
sdb                       159         49      29957        440  0.449411 0.554545
sdc                      1108         80      36071        326  0.208395 0.478528
```

Display consolidated DMP-related statistics of all the running nodes in the cluster.

```
System> stat dmp
Node       Path       Av_read_time(ms) Av_write_time(ms)
----       ----       ---------------- -----------------
sfs1_1     sda          65.696           0.000
sfs1_1     sdf          0.285            0.716
sfs1_1     sdd          0.266            0.472
sfs1_1     sdg          2.804            0.365
sfs1_1     sde          4.512            0.664
sfs1_1     sdb          0.449            0.555
sfs1_1     sdc          0.208            0.479
sfs1_2     sda          28.857           0.000
```

Display filesystem IO statistics of all running nodes in the cluster.

```
System> stat fsio testfs1
                              OPERATIONS              BLOCKS           AVG TIME(ms)
NAME                         READ      WRITE       READ      WRITE    READ   WRITE
----                         ----------------      ----------------   ------------
Node: sfs1_0
==============
testfs1_tier1                 532        206       2336       7486    1.17    9.98
testfs1_tier2                   1          1          2         16    4.00    8.00
Node: sfs1_1
==============
testfs1_tier1                 369        168       1970       3218    2.12    7.67
testfs1_tier2                   1          0          2          0    0.00    0.00
```

Display system and DMP-related statistics of node1.

```
System> stat all node1
```

Display system and DMP-related statistics of all nodes in the cluster.

```
System> stat all
```

Display cluster wide Network and IO throughput.

```
System> stat cluster
Gathering statistics...
Cluster wide statistics::::
============================
IO throughput :: 0
Network throughput :: 1.205
```

Display RDMA network statistics.

```
System> stat rdma
Gathering statistics...
TAG-NAME   MODE   PRIORITY   MTU   BROADCAST     TxPKTS(M)   TxBYTES(MB)   RxPKT
=========  =====  =========  ====  ============  ==========  ============  =====
priveth0   rdma   hipri      8192  172.16.0.255  1.45        106.35        1.34
priveth1   rdma   hipri      8192  172.16.1.255  1.45        106.35        1.34
```

Display RDMA network statistics for specific node(s).

```
System> stat rdma rdma_01,rdma_02
Gathering statistics...
NODE     TAG-NAME   PROTOCOL   NODE-RANGE   LINK-TYPE   UDP-PORT   MTU   IP ADDRESS
↪BCAST-ADDRESS
=======  =========  =========  ===========  ==========  =========  ====  ===========
↪==============
rdma_02  priveth0   udp        -            rdma        51001      -     172.16.0.4
↪172.16.0.255
rdma_02  priveth1   udp        -            rdma        51002      -     172.16.1.4
↪172.16.1.255
rdma_01  priveth0   udp        -            rdma        51001      -     172.16.0.3
↪172.16.0.255
rdma_01  priveth1   udp        -            rdma        51002      -     172.16.1.3
↪172.16.1.255
```

NOTE: MTU: '-' is the default, which has a value of 8192. NODE-RANGE: '-' indicates all cluster are to be configured for this link.

20.20 stig

20.20.1 SYNOPSIS

```
stig enable

stig precheck

stig show
```

20.20.2 DESCRIPTION

The `system stig` command provides the facility to precheck for STIG prerequisites, enable STIG on the cluster and display status for STIG. For enabling STIG on cluster, the following prerequisites are checked. The minimum number of NTP and DNS server required to be configured are 2 and atleast 1 SMTP server. By default if these conditions are not met the STIG enablement will fail. The force option can be used to override the precheck.

20.20.3 OPTIONS

`stig enable [force]` Enable the STIG on all nodes in the cluster.

`stig precheck` Check for the STIG pre-requisites.

`stig show` Show the status of STIG enablement on the cluster and all nodes.

20.20.4 EXAMPLES

1) Display the STIG precheck output.

When all the prerequisites are met

```
accesscluster.System> security stig precheck
NTP Check    :  PASS
Email Check  :  PASS
DNS Check    :  PASS
```

When some of the prerequisites are not met.

```
accesscluster.System> security stig precheck
NTP Check    :  PASS
Email Check  :  FAIL
DNS Check    :  FAIL
ACCESS service WARNING V-493-10-0 SMTP check FAILED: No Emails Configured. Setup␣
↪Autosupport to configure mails.
ACCESS service WARNING V-493-10-0 DNS Check FAILED. Add at least 2 nameservers to be␣
↪STIG compatible.
```

2) Display the STIG show output.

When STIG is disabled on the cluster

```
nbu-hc.System> security stig show
STIG Extended Rules Cluster state  :  DISABLED
STIG Extended Rules Node Status    :
```

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```
access-01                          :  DISABLED
access-02                          :  DISABLED
```

When STIG is enabled on all nodes in the cluster

```
nbu-hc.System> security stig show
STIG Extended Rules Cluster state  :  ENABLED
STIG Extended Rules Node Status    :
access-01                          :  ENABLED
access-02                          :  ENABLED
```

When some nodes is down in the cluster

```
nbu-hc.System> security stig show
STIG Extended Rules Cluster state  :  ENABLED
STIG Extended Rules Node Status    :
access-01                          :  ENABLED
access-02                          :  UNKNOWN
```

3) Display the STIG enable output.

When all the precheck conditions are met

```
nbu-hc.System> security stig enable
NTP Check    :  PASS
Email Check  :  PASS
DNS Check    :  PASS
Continuing enablement...
Enabling STIG on access-01   :  ENABLED
Enabling STIG on access-02   :  ENABLED
```

When precheck conditons are not met

```
nbu-hc.System> security stig enable
NTP Check    :  FAIL
Email Check  :  FAIL
DNS Check    :  PASS
ACCESS service WARNING V-493-10-0 NTP Check FAILED: No NTP Server Configured. Please␣
↪configure NTP.
ACCESS service WARNING V-493-10-0 SMTP check FAILED: No Emails Configured. Setup␣
↪Autosupport to configure mails.
```

When some preconditions are not met and we forcefully enable STIG

```
nbu-hc.System> security stig enable force
NTP Check    :  FAIL
Email Check  :  FAIL
DNS Check    :  PASS
ACCESS service WARNING V-493-10-0 NTP Check FAILED: No NTP Server Configured. Please␣
↪configure NTP.
ACCESS service WARNING V-493-10-0 SMTP check FAILED: No Emails Configured. Setup␣
↪Autosupport to configure mails.
Continuing enablement...
Enabling STIG on access-01   :  ENABLED
Enabling STIG on access-02   :  ENABLED
```

20.20.5 SEE ALSO

system(1)

21

Target Commands

21.1 lun

21.1.1 SYNOPSIS

`iscsi lun create` *lun-name target-name size* [*option=dense|sparse*] [*security=yes|no*]

`iscsi lun destroy` [*lun-name|clone-name*] *target-name* [*force*]

`iscsi lun list` [*target-name*]

`iscsi lun growto` *lun-name target-name size*

`iscsi lun shrinkto` *lun-name target-name size*

`iscsi lun clone create` *lun-name clone-name*

`iscsi lun clone list` [*clone-name*]

`iscsi lun snapshot create` *lun-name snapshot-name*

`iscsi lun snapshot destroy` *lun-name snapshot-name*

`iscsi lun snapshot restore` *lun-name snapshot-name*

`iscsi lun snapshot list` [*snapshot-name*]

21.1.2 DESCRIPTION

The `iscsi lun` commands are used to perform LUN-related operations.

21.1.3 OPTIONS

`iscsi lun create` ***lun-name target-name size*** **[*option=dense|sparse*] [*security=yes|no*]** Create a LUN with the specified name size on the specified file system. if option=dense, dense LUN is created. The default option is sparse. If security=yes, then LUN is allocated using Zero-Fill-On-Demand policy. The default value of security is yes. The security parameter does not affect the creation of sparse LUNs.

`iscsi lun destroy` **[*lun-name|clone-name*]** ***target-name*** **[*force*]** Destroy a specific LUN or clone.

iscsi lun list [*target-name*] List details of all the LUNs and clones present in all or a specific target.

target iscsi lun growto *lun-name target-name size* Grow specific LUN to specified size.

target iscsi lun shrinkto *lun-name target-name size* Shrink specific LUN to specified size.

iscsi lun clone create *lun-name clone-name* Create a clone of specified LUN with specified name.

iscsi lun clone list [*clone-name*] List details of all clones or specified clone.

iscsi lun snapshot create *lun-name snapshot-name* Create a snapshot of specified LUN with specified name.

iscsi lun snapshot destroy *lun-name snapshot-name* Destroy specified snapshot of specified LUN.

iscsi lun snapshot restore *lun-name snapshot-name* Restore a specified snapshot of specified LUN.

iscsi lun snapshot list [*snapshot-name*] List details of all snapshots or specified snapshot.

21.1.4 EXAMPLES

Create a LUN for iSCSI:

```
Target> iscsi lun create lun1 iqn.2017-10.com.veritas:target1 2m option=sparse␣
↪security=yes
ACCESS Target SUCCESS V-288-0 Lun lun1 created successfully and added to target iqn.
↪2017-10.com.veritas:target1
```

Delete LUN or clone form iSCSI:

```
Target> iscsi lun destroy lun3 iqn.2017-10.com.veritas:target1 force
ACCESS Target SUCCESS V-288-0 Lun deletion for LUN lun3 was successful.
```

List the details of all the LUNs and clones present on the system for all the targets:

```
Target> iscsi lun list
Target Name                 Lun Name  Lun Size  Lun Type
==========================  ========  ========  ========
iqn.2017-03.com.example:t1  lun1      10G       Sparse
```

List the details of the LUNs which are mapped to a specified target:

```
access.Target> iscsi lun list iqn.2017-03.com.example:t1
Lun Name  Lun Size  Lun Type  Store
========  ========  ========  =====
lun2      1G        Dense     fs1
lun1      1G        Sparse    fs1
```

Grow LUN size to specified size:

```
Target> iscsi lun growto lun1 iqn.2017-10.com.veritas:target1 4m
ACCESS Target SUCCESS V-288-0 Lun growto for lun1 successful.
```

Shrink LUN size to specified size:

```
Target> iscsi lun shrinkto lun1 iqn.2017-10.com.veritas:target1 2m
ACCESS Target SUCCESS V-288-0 Lun shrinkto for lun1 successful.
```

Create a clone of LUN:

```
Target> target iscsi lun clone create lun1 clone1
ACCESS Target SUCCESS V-288-0 Clone clone1 created successfully and added to target␣
↪iqn.2017-11.com.veritas:target1
```

List all clones:

```
Target> target iscsi lun clone list
Clone Name   Lun Name   Target Name                       Date Created
==========  =========  ================================  ========================
clone1       lun1       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:15:13 2017
clone2       lun2       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:15:24 2017
```

List details of specified clone:

```
Target> target iscsi lun clone list clone1
Clone Name   Lun Name   Target Name                       Date Created                ␣
↪Size   Lun Type
==========  =========  ================================  ========================  ␣
↪=====  =========
clone1       lun1       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:15:13 2017  ␣
↪10M    dense
```

Create a snapshot of LUN:

```
Target> target iscsi lun snapshot create lun1 snap1
ACCESS Target SUCCESS V-288-0 Snapshot snap1 created successfully.
```

Destroy a snapshot of LUN:

```
Target> target iscsi lun snapshot destroy lun1 snap1
ACCESS Target SUCCESS V-288-0 Snapshot snap1 deleted successfully.
```

Restore snapshot of LUN:

```
Target> target iscsi lun snapshot restore lun1 snap1
ACCESS Target SUCCESS V-288-0 Snapshot snap1 restored successfully in lun lun1.
```

List all snapshots:

```
Target> target iscsi lun snapshot list
Snapshot Name   Lun Name   Target Name                       Date Created
=============  =========  ================================  ========================
snap1           lun1       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:16:25 2017
snap2           lun2       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:16:31 2017
```

List details of specified snapshot:

```
Target> target iscsi lun snapshot list snap1
Snapshot Name   Lun Name   Target Name                       Date Created                ␣
↪Size   Lun Type
=============  =========  ================================  ========================  ␣
↪=====  =========
```

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```
snap1           lun1       iqn.2017-11.com.veritas:target1  Thu Nov  9 01:16:25 2017 ␣
↪10M    dense
```

21.1.5 SEE ALSO

target(1), target_iscsi_service(1), target_iscsi_target(1)

21.2 service

21.2.1 SYNOPSIS

`iscsi service` *start|stop|status*

21.2.2 OPTIONS

`iscsi service` ***start|stop|status*** Start, stop or display the status of the iSCSI target service.

21.2.3 EXAMPLES

Start the iSCSI target service. If the iSCSI target service is already started, the start command clears the faults, if any, and then tries to start the iSCSI target service:

```
Target> iscsi service start
ACCESS Target SUCCESS V-288-0 iSCSI Target service started
```

Stop the iSCSI target service:

```
Target> iscsi service stop
ACCESS Target SUCCESS V-288-0 iSCSI Target service stopped
```

Check the status of iSCSI target service:

```
Target> iscsi service status
Node   Status
=====  ========
VA_01  OFFLINE
VA_02  OFFLINE
```

21.2.4 SEE ALSO

target(1), target_iscsi_lun(1), target_iscsi_target(1)

21.3 target

21.3.1 SYNOPSIS

`iscsi target portal add` *target-name ip-address*

`iscsi target portal del` *target-name ip-address*

`iscsi target create` *target-name*

`iscsi target destroy` *target-name*

`iscsi target list` [*target-name*]

`iscsi target status` *target-name*

`iscsi target store add` *fs-name target-name*

`iscsi target store delete` *fs-name target-name*

`iscsi target map add` *target-name initiator-name*

`iscsi target map delete` *target-name target-name*

`iscsi target auth incominguser add` *target-name user-name*

`iscsi target auth incominguser delete` *target-name user-name*

21.3.2 DESCRIPTION

The `iscsi target` command creates, manages and destroys targets on Veritas Access. You can perform the following functions on an iSCSI target:

1. Addition and deletion of targets using the `iscsi target` commands
2. Associating file system as backing store for a target using the `iscsi target store` commands
3. Map and un-map initiators using the `iscsi target map` commands
4. Addition and deletion of users to set up CHAP authentication

21.3.3 OPTIONS

`iscsi target portal add` ***target-name portal-ip*** Add multiple portal addresses to an iSCSI target. It destroys previous portals and add new ones.

`iscsi target portal del` ***target-name portal-ip*** Delete multiple portal addresses from an iSCSI target.

`iscsi target create` ***target-name*** Create an iSCSI target.

`iscsi target destroy` ***target-name*** Destroy a specific iSCSI target.

`iscsi target list` **[*target-name*]** List all or specific iSCSI targets.

`iscsi target status` ***target-name*** Check the status of a specific iSCSI target.

`iscsi target store add` ***fs-name target-name*** Map file system with specified iSCSI target.

`iscsi target store delete` ***fs-name target-name*** Remove the file system from a specified iSCSI target.

iscsi target map add *target-name initiator-name* Map the iSCSI initiator with specified iSCSI target.

iscsi target map delete *target-name initiator-name* Remove the iSCSI initiator mapped to a specified iSCSI target.

iscsi target auth incominguser add *target-name user-name* Create an incoming user and bind the account to a specified, existing iSCSI target.

iscsi target auth incominguser delete *target-name user-name* Remove an incoming user and unbind the account from its corresponding iSCSI target.

21.3.4 EXAMPLES

Add multiple portal addresses to an iSCSI target:

```
Target> iscsi target portal add iqn.2017-12.com.veritas:target2 10.209.105.193,10.209.
↪105.192
ACCESS Target SUCCESS V-493-10-2691 Portal IPs :  10.209.105.193, 10.209.105.192 were␣
↪added successfully.
```

Delete multiple portal addresses from an iSCSI target:

```
Target> iscsi target portal del iqn.2017-12.com.veritas:target2 10.209.105.193,10.209.
↪105.192
ACCESS Target SUCCESS V-493-10-2697 Portal IPs :  10.209.105.193, 10.209.105.192 were␣
↪deleted successfully.
```

Create an iSCSI target:

```
Target> iscsi target create iqn.2017-02.com.veritas:target03
ACCESS Target SUCCESS V-288-0 Target iqn.2017-02.com.veritas:target03 created␣
↪successfully.
```

Destroy a specific iSCSI target:

```
Target> iscsi target destroy iqn.2001-04.com.veritas:target03
ACCESS Target SUCCESS V-288-0 iSCSI target deletion for iqn.2017-02.com.
↪veritas:target03 was completed successfully.
```

List all or specific iSCSI target:

```
Target> iscsi target list
Target Name                     Store
==============================  ======
iqn.2017-12.com.veritas:target1  fs1
iqn.2017-12.com.veritas:target2

Target> iscsi target list iqn.2017-12.com.veritas:target1
Target Name                     Store   Initiator Mappings                                ␣
↪  Portals         Users
==============================  ======  ␣
↪=============================================  ==============  ======
iqn.2017-12.com.veritas:target1  fs1     iqn.1998-01.com.vmware:ssnasdl380-12-
↪48e54bc7  10.209.105.192
```

Check the status of a specific iSCSI target:

```
Target> iscsi target status iqn.2017-10.com.veritas:target11
ACCESS Target SUCCESS V-288-0 Status of target iqn.2017-10.com.veritas:target11 is␣
↪ONLINE
```

Map the store to specific iSCSI target:

```
Target> iscsi target store add fs3 iqn.2017-02.com.veritas:target1
ACCESS Target SUCCESS V-288-0 FS fs3 is added to iSCSI target iqn.2017-02.com.
↪veritas:target1.
```

Remove the mapping of store from specific iSCSI target:

```
Target> iscsi target store delete fs3 iqn.2017-02.com.veritas:target1
ACCESS Target SUCCESS V-288-0 FS fs3 is deleted from iSCSI target iqn.2017-02.com.
↪veritas:target1.
```

Map an iSCSI initiator with specific iSCSI target:

```
Target> iscsi target map add iqn.2017-10.com.veritas:target1 iqn.2001-04.com.
↪veritas:26064.02
ACCESS Target SUCCESS V-288-0 Initiator iqn.2001-04.com.veritas:26064.02 was mapped␣
↪successfully.
ACCESS Target INFO V-288-0 Please configure userid and password for iqn.2017-10.com.
↪veritas:target1.
```

Remove the mapping of iSCSI initiator from specific iSCSI target:

```
Target> iscsi target map delete iqn.2017-10.com.veritas:target1 iqn.2001-04.com.
↪veritas:26064.02
ACCESS Target SUCCESS V-288-0 Initiator iqn.2001-04.com.veritas:26064.02 was deleted␣
↪successfully.
```

Create an incoming user and bind the account to a specified, existing iSCSI target:

```
Target> iscsi target auth incominguser add iqn.2017-02.com.veritas:target03 robin
Input password for robin
Enter Password:
Re-enter Password:
ACCESS Target SUCCESS V-288-0 Add user robin successfully.
```

Remove an incoming user and unbind the account from its corresponding iSCSI target:

```
Target> iscsi target auth incominguser delete iqn.2001-04.com.veritas:target2 robin
ACCESS Target SUCCESS V-288-0 Delete user robin successfully.
```

21.3.5 SEE ALSO

target(1), target_iscsi_lun(1), target_iscsi_service(1)

22 Deduplication Commands

22.1 dedupe

22.1.1 SYNOPSIS

`config` *filesystem1* [, *filesystem2*,. . .] *ip username* [catalogfilesystem] [enable_worm={yes|no}] [*minret*] [*maxret*]

`show`

`start`

`stats`

`status`

`stop`

`grow` *size*

`catgrow` *size*

`adduser` *username*

`listuser`

`passwd` *username*

`addip` *ipaddr*

`removeip` *ipaddr*

`fqdn add` *ip fqdn*

`fqdn remove` *ip*

`setmaxcachesize`

`unconfig` [destroy_fs={yes|no}]

22.1.2 DESCRIPTION

The deduplication commands are used to configure and manage the deduplication server on a cluster. After the deduplication server is configured, the user needs to add a new storage server on the NetBackup media server to consume the deduplication service for storing backups.

22.1.3 OPTIONS

config *filesystem1* **[,** *filesystem2*,**...] ip username [catalogfilesystem] [enable_worm={yes|no}] [***minret***] [***maxret***]**
Configures the deduplication server using given set of data file systems, IP address, user name and catalog file system. The data and catalog file systems are used to store the deduplicated data and its metadata respectively. By default, the WORM parameter is set to 'no'. To enable the WORM functionality, set enable_worm to 'yes' and provide minimum and maximum retention time simultaneously. Minimum retention time should be greater than 3600 seconds.

The deduplication server uses the *IP* to receive the backup data from NetBackup server and same *IP* is also used to add storage unit (STU) on NetBackup server.

The config command prompts the user for the password for the given user name. The user name and password should both be a non-empty string. The maximum length is 62 characters. The user name and password credentials defined here are used later while configuring the storage server on the NetBackup server. The credentials defined here have no relation to the system user name or the Veritas Access user name and password.

The user name and password string can contain characters in the printable ASCII range (0x20-0x7E). The exceptions are: asterisk (*), backward slash () and forward slash (/), double quote (“), left parenthesis [(] and right parenthesis [)], less than (<) and greater than (>) sign, caret sign (^), percentage sign (%), United States dollar sign ($), spaces, leading and trailing quotes.

Note: If you want to reconfigure Veritas Deduplication using previously used file systems, you have to use the same credentials that you used during the initial configuration.

show The show command is used to display information about the deduplication server that has been configured. The output of this command includes the file system(s) being used, deduplication server status, storage capacity, virtual IP used, secondary IP, percentage of memory usage, maximum cache size, and the IP and the cluster node on which the server is running and whether the deduplication server is WORM-enabled or not. If the deduplication server is WORM-enabled, the minimum and maximum retention time is also displayed.

start Starts the deduplication server on one of the cluster nodes. The deduplication server should be already configured before starting the deduplication server.

stats Displays the deduplication server statistics. The information includes details like total storage size, free storage, and deduplication ratio. The deduplication server should be online for this operation.

status Shows the status of the deduplication server (whether the server is running) and the cluster node on which the server is running.

stop Stops the deduplication server. The deduplication server must be configured and running. If any backup job is running when the server is stopped, the job will abort with an error.

grow ***size*** Grows the storage capacity of the deduplication server to the given *size*. The deduplication server should be online for this operation.

catgrow ***size*** Grows the catalog filesystem of the deduplication server to the given *size*. The deduplication server should be online for this operation.

adduser ***username*** Adds a new user to the deduplcation server. The adduser command prompts the user for the password for the given user name. The user name and password should both be a non-empty string. The maximum length is 62 characters. The user name and password credentials defined here are used later while configuring the storage server on the NetBackup server. The credentials defined here have no relation to the system user name or the Veritas Access user name and password.

The user name and password string can contain characters in the printable ASCII range (0x20-0x7E). The exceptions are: asterisk (*), backward slash (\) and forward slash (/), double quote (“), left parenthesis [(] and right parenthesis [)], less than (<) and greater than (>) sign, caret sign (^), percentage sign (%), United States dollar sign ($), spaces, leading and trailing quotes.

listuser Shows the list of users of the deduplication server.

passwd *username* Changes the password of the deduplication server user.

addip *ipaddr* Adds the IP to the deduplication server.

removeip *ipaddr* Removes the IP from the deduplication server.

fqdn add *ip fqdn* Adds the FQDN to the deduplication server.

fqdn remove *ip* Removes the FQDN from the deduplication server.

setmaxcachesize Sets the maximum cache size for the deduplication server.

unconfig [destroy_fs={yes|no}] The unconfig command is used to unconfigure deduplication server on the cluster. After the deduplication server is unconfigured, the file system(s) and the deduplicated data stored on it are not destroyed by default. If destroy_fs parameter is set to 'yes', the file system(s) are destroyed.

22.1.4 EXAMPLES

Configure the deduplication server on file system `fs_dedupe, catfs` and IP `10.209.195.204`

```
access> dedupe config fs_dedupe 10.209.195.204 dedupe_user catfs
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

Configure the deduplication server on file systems `fs1, fs2, catfs` and IP `10.209.195.204`

```
access> dedupe config fs1,fs2 10.209.195.204 dedupe_user catfs
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

Configure the deduplication server on file system `fs_dedupe, cat_fs` and IP `10.209.195.204` with worm enabled

```
access> dedupe config fs_dedupe 10.209.195.204 dedupe_user cat_fs enable_worm=yes␣
↪3601s 5000s
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

Show information about the deduplication server.

```
access> dedupe show
Parameter                      Value
============================   ==============
Virtual_IP                     10.209.145.15
Secondary_IP                   10.122.53.126
Catalog_Filesystem             cat_fs
Filesystem                     dedupe_fs
Deduplication_Storage_Size_GB  10
WORM_enabled                   True
Hostname                       r8915-0084567
Server_Status                  ONLINE
Minimum_Retention_Value        3601
```

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```
Maximum_Retention_Value        3605
Max_Cache_Size                 50%
Percentage_Memory_Usage        3.09%

access> dedupe show
Parameter                      Value
============================   =============
Virtual_IP                     10.122.53.125
Secondary_IP                   10.122.53.126
Catalog_Filesystem             catfs
Filesystem                     dedupe_fs
Deduplication_Storage_Size_GB  10
WORM_enabled                   False
Hostname                       node-02
Server_Status                  ONLINE
Max_Cache_Size                 50%
Percentage_Memory_Usage        3.07%
Minimum_Retention_Value
Maximum_Retention_Value
```

Start the deduplication server.

```
access> dedupe start
ACCESS dedupe INFO V-493-10-0 Deduplication server is Started.
```

Show the deduplication server statistics.

```
access> dedupe stats
Parameter                       Value
==============================  =======
Storage_Pool_Used_Space         652.2MB
Deduplication_Ratio             9.5
Catalog_files_Count             23
Storage_Pool_Size               149.9GB
Storage_Pool_Available_Space    149.2GB
Catalog_Logical_Size            101.2KB
Storage_Pool_Raw_Size           158.8GB
Space_Allocated_For_Containers  10.6KB
Storage_Pool_Reserved_Space     8.9GB
```

Show the current status of the deduplication server.

```
access> dedupe status
Hostname  Status
========  =======
sfsqa-21  OFFLINE
sfsqa-20  ONLINE
```

Stop the deduplication server.

```
access> dedupe stop
ACCESS dedupe INFO V-493-10-0 Deduplication server is Stopped.
```

Add a new user to the deduplication server.

```
access> dedupe adduser dedupe_user1
Enter Password:
```

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```
ACCESS dedupe INFO V-493-10-0 Adding new user dedupe_user1 to deduplication server...
ACCESS dedupe INFO V-493-10-0 Added new user dedupe_user1 to deduplication server␣
↪successfully.
```

Show the list of users of the deduplication server.

```
access> dedupe listuser
List of Users
=============
dedupe_user1
dedupe_user2
```

Change the password of the deduplication server user

```
access> dedupe passwd dedupe_user1
Current password:
New Password:
Confirm new password:
ACCESS dedupe INFO V-493-10-0 Changing password of user dedupe_user1
ACCESS dedupe INFO V-493-10-0 Successfully changed the password of user dedupe_user1
```

Grow the storage capacity of the deduplication server.

```
access> dedupe grow 12G
ACCESS dedupe INFO V-493-10-0 Growing deduplication server Storage...
ACCESS dedupe INFO V-493-10-0 Deduplication Server Storage capacity is grown
successfully.
```

Grow the catalog filesystem of the deduplication server.

```
access> dedupe catgrow 10T
ACCESS dedupe INFO V-493-10-0 Growing catalog filesystem...
ACCESS dedupe INFO V-493-10-0 Deduplication server catalog filesystem is grown␣
↪successfully.
```

Add the IP to the deduplication server.

```
access> dedupe addip 10.209.192.216
ACCESS dedupe INFO V-493-10-0 IP has been successfully added to the deduplication␣
↪server.
```

Remove the IP from the deduplication server.

```
access> dedupe removeip 10.209.192.216
ACCESS dedupe INFO V-493-10-0 IP has been successfully removed from the deduplication␣
↪server.
```

Add the FQDN to the deduplication server.

```
access> dedupe fqdn add 10.221.54.50 dl740xdg10-20v010.vxindia.veritas.com
Access Appliance dedupe INFO V-493-10-0 Added FQDN to the deduplication server␣
↪configuration successfully.
```

Remove the FQDN from the deduplication server.

```
access> dedupe fqdn remove 10.221.54.50
Access Appliance dedupe INFO V-493-10-0 Removed FQDN from the deduplication server␣
↪configuration successfully.
```

Set maximum cache size for the deduplication server.

```
access> dedupe setmaxcachesize 70
ACCESS dedupe INFO V-493-10-0 Restarting the deduplication server....
ACCESS dedupe INFO V-493-10-0 Maximum cache size for deduplication server is␣
↪successfully set to 70%.
```

Unconfigure the deduplication server.

```
access> dedupe unconfig
Access Appliance dedupe INFO V-493-10-3735 Deduplication server unconfigured␣
↪successfully.

access> dedupe unconfig destroy_fs=yes
Access Appliance dedupe INFO V-493-10-3735 Deduplication server unconfigured␣
↪successfully.
```

22.2 addip

22.2.1 SYNOPSIS

`addip` *ipaddr*

22.2.2 DESCRIPTION

The addip command is used to add an IP to the deduplication server. There is no limit on the number of IPs that can be added. If any of the IP addresses fail, then the entire group fails over to the other node.

22.2.3 OPTIONS

`addip` ***ipaddr*** Adds the IP to the deduplication server.

22.2.4 EXAMPLES

Add the IP to the deduplication server.

```
access> dedupe addip 10.209.192.216
ACCESS dedupe INFO V-493-10-0 IP has been successfully added to the deduplication␣
↪server.
```

22.2.5 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.3 adduser

22.3.1 SYNOPSIS

`adduser` *username*

22.3.2 DESCRIPTION

The adduser command adds a new user to the deduplication server.

22.3.3 OPTIONS

`adduser` ***username*** The adduser command prompts the user for the password for the given user name. The user name and password should both be a non-empty string. The maximum length is 62 characters. The user name and password credentials defined here are used later while configuring the storage server on the NetBackup server. The credentials defined here have no relation to the system user name or the Veritas Access user name and password.

The user name and password string can contain characters in the printable ASCII range (0x20-0x7E). The exceptions are: asterisk (*), backward slash (\) and forward slash (/), double quote (“), left parenthesis [(] and right parenthesis [)], less than (<) and greater than (>) sign, caret sign (^), percentage sign (%), United States dollar sign ($), spaces, leading and trailing quotes.

22.3.4 EXAMPLES

Add a new user to the deduplication server.

```
access> dedupe adduser dedupe_user1
Enter Password:
ACCESS dedupe INFO V-493-10-0 Adding new user dedupe_user1 to deduplication server...
ACCESS dedupe INFO V-493-10-0 Added new user dedupe_user1 to deduplication server␣
↪successfully.
```

22.3.5 SEE ALSO

config(1), show(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.4 catgrow

22.4.1 SYNOPSIS

`catgrow` *size*

22.4.2 DESCRIPTION

The catgrow command is used to grow the catalog filesystem of the deduplication server. The deduplication server should be online for this operation.

22.4.3 OPTIONS

`catgrow` ***size*** Grows the catalog filesystem of the deduplication server to the given *size*.

22.4.4 EXAMPLES

Grow the catalog filesystem of the deduplication server.

```
access> dedupe catgrow 10T
ACCESS dedupe INFO V-493-10-0 Growing catalog filesystem...
ACCESS dedupe INFO V-493-10-0 Deduplication server catalog filesystem is grown␣
↪successfully.
```

22.4.5 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1) unconfig(1), setmaxcachesize(1)

22.5 cluster config

22.5.1 SYNOPSIS

`cluster config` *username* [*service_ip=VIP*] *catalog_file_system_name* [*VIP2,...*] [*data_file_system1,...*]

22.5.2 DESCRIPTION

The dedupe cluster config command configures the scale-out deduplication cluster. The configuration creates the engine, proxy and mds containers on all the nodes in the scale-out deduplication cluster. It also creates a single instance of the controller container on one of the nodes in the scale-out deduplication cluster.

22.5.3 OPTIONS

`cluster config` *username* [*service_ip=VIP*] *catalog_file_system_name* [*VIP2,...*] [*data_file_system1,...*]

username User name used to configure the cluster.

service_ip Virtual IP of the engine used for storage unit addition in NetBackup.

catalog_file_system_name File system used to store the catalog data of the catalog engine.

VIP list List of virtual IPs used to configure the engines.

data_file_system list List of file systems used to store the data in the cluster nodes.

22.5.4 EXAMPLES

Configure the scale-out deduplication cluster.

```
msdpx> dedupe cluster config root 10.182.102.131 catfs 10.182.102.132,10.182.102.133,
↪10.182.101.214 ecfs1,ecfs2,ecfs3,ecfs4
Enter the password:
ACCESS cluster_dedupe INFO V-493-10-3771 Configuring the scale-out deduplication␣
↪cluster...
ACCESS cluster_dedupe INFO V-493-10-3792 Scale-out deduplication cluster is␣
↪configured successfully.
```

22.5.5 SEE ALSO

unconfig(1), start(1), stop(1), show(1), stats(1), grow(1)

22.6 cluster grow

22.6.1 SYNOPSIS

`cluster grow` [*new_size*=<*megabytes*|*gigabytes*|*terabytes*|*petabytes*>]

22.6.2 DESCRIPTION

The dedupe cluster grow command grows the capacity of the Veritas Data Deduplication server to the given size. The specified size can be in megabytes, gigabytes, terabytes or petabytes. The specified size must be greater than the current size.

22.6.3 EXAMPLES

Grow the capacity of scale-out deduplication cluster.

```
msdpx> dedupe cluster grow 40G
ACCESS cluster_dedupe INFO V-493-10-0 Growing storage capacity of scale-out␣
↪deduplication cluster...
ACCESS cluster_dedupe INFO V-493-10-0 Storage of scale-out deduplication cluster␣
↪grown successfully.

msdpx> dedupe cluster grow 1G
ACCESS cluster_dedupe ERROR V-493-10-0 Failed to grow storage for scale-out␣
↪deduplication cluster, Grow size must be larger than current size.
```

22.6.4 SEE ALSO

config(1), unconfig(1), start(1), stop(1), show(1), stats(1)

22.7 cluster show

22.7.1 SYNOPSIS

```
cluster show
```

22.7.2 DESCRIPTION

The dedupe cluster show command displays the nodes in the scale-out deduplication cluster, their IPs, states, and file systems. It also displays information about the controller such as, the controller node, controller IP, catalog file system and service IP.

22.7.3 EXAMPLES

Show the details about the nodes in the scale-out deduplication cluster and information about the controller, service IP and catalog file system.

```
msdpx> dedupe cluster show

Engine details:
===============
Node name  IP              Status   FS
=========  ==============  =======  ===
msdpx_01   10.100.100.10  Healthy  fs1
msdpx_03   10.100.100.10  Healthy  fs3
msdpx_02   10.100.100.10  Healthy  fs2
msdpx_05   10.100.100.10  Healthy  fs5
msdpx_04   10.100.100.10  Healthy  fs4

Cluster details:
================
Controller node:  msdpx_01
Controller IP:    100.10.0.10
Service IP:       10.100.100.10
Overall status:   Running
Catalog FS:       catfs
```

22.7.4 SEE ALSO

config(1), unconfig(1), start(1), stop(1), stats(1), grow(1)

22.8 cluster start

22.8.1 SYNOPSIS

`cluster start` [*wait_for_start={yes|no}*]

22.8.2 DESCRIPTION

The dedupe cluster start command starts the deduplication engine on all the nodes in the scale-out deduplication cluster. It enables the engine on all the nodes present in the scale-out deduplication cluster.

22.8.3 EXAMPLES

Start the deduplication engine on all nodes.

```
msdpx>dedupe cluster start wait_for_start=yes
ACCESS cluster_dedupe INFO V-493-10-0 Deduplication cluster engines started␣
↪successfully.

msdpx>dedupe cluster start wait_for_start=no
ACCESS cluster_dedupe INFO V-493-10-3914 Deduplication cluster start operation␣
↪triggered successfully.
```

22.8.4 SEE ALSO

config(1), unconfig(1), stop(1), show(1), stats(1), grow(1)

22.9 cluster stats

22.9.1 SYNOPSIS

```
cluster stats
```

22.9.2 DESCRIPTION

The dedupe cluster stats command displays statistics for storage utilization. The command gives details such as the deduplication ratio, catalog logical size, catalog files count, used space, pool size, reserved space, raw size and available space.

22.9.3 EXAMPLES

Show information about nodes in scale-out deduplication cluster and information about controller, service IP and catalog filesystem.

```
msdpx> dedupe cluster stats
Cluster stats:
==============
Deduplication ratio:       0
Allocated for containers:  0
Catalog logical size:      0
Catalog files count:       0
Used space:                2.06GB
Pool size:                 75.19GB
Reserved space:            4.20GB
Raw size:                  79.39GB
Available space:           73.14GB
```

22.9.4 SEE ALSO

config(1), unconfig(1), start(1), stop(1), show(1), grow(1)

22.10 cluster stop

22.10.1 SYNOPSIS

```
cluster stop
```

22.10.2 DESCRIPTION

The dedupe cluster stop command stops the deduplication engine on all the nodes in the scale-out deduplication cluster. It disables the engine on all the nodes present in the scale-out deduplication cluster.

22.10.3 EXAMPLES

Stop the deduplication engine on all nodes.

```
msdpx>dedupe cluster stop
ACCESS cluster_dedupe INFO V-493-10-0 Deduplication cluster engines stopped␣
↪successfully.
```

22.10.4 SEE ALSO

config(1), show(1), stats(1), grow(1), status(1), start(1), stop(1), adduser(1), listuser(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.11 cluster unconfig

22.11.1 SYNOPSIS

```
cluster unconfig
```

22.11.2 DESCRIPTION

The dedupe cluster unconfig command unconfigures the scale-out deduplication cluster. This command stops the engines and containers and removes the container's configuration in the /uss/config file and the VCS groups.

Note: This command does not remove the file system data.

22.11.3 EXAMPLES

Unconfigure the scale-out deduplication cluster.

```
msdpx> dedupe cluster unconfig
ACCESS cluster_dedupe INFO V-493-10-0 Unconfiguring scale-out deduplication cluster...
ACCESS cluster_dedupe INFO V-493-10-0 Unconfigured scale-out deduplication cluster␣
↪successfully.
```

22.11.4 SEE ALSO

config(1), start(1), stop(1), show(1), stats(1), grow(1)

22.12 config

22.12.1 SYNOPSIS

`config` *filesystem1* [, *filesystem2*,...] *ip username catalogfilesystem* [enable_worm={yes|no}] [*minret*] [*maxret*]

22.12.2 DESCRIPTION

The config command is used to configure and manage the deduplication server on a cluster. After the deduplication server is configured, the user needs to add a new storage server on the NetBackup media server to consume the deduplication service for storing backups.

22.12.3 OPTIONS

`config` *filesystem1* [, *filesystem2*,...] *ip username catalogfilesystem* [enable_worm={yes|no}] [*minret*] [*maxret*]

Configures the deduplication server using given set of data file systems, IP address, user name and catalog file system. The data and catalog file systems are used to store the deduplicated data and its metadata respectively. By default, the WORM parameter is set to 'no'. To enable the WORM functionality, set enable_worm to 'yes' and provide minimum and maximum retention time simultaneously. Minimum retention time should be greater than 3600 seconds. The deduplication server uses the *IP* to receive the backup data from NetBackup server and same *IP* is also used to add storage unit (STU) on NetBackup server.

The config command prompts the user for the password for the given user name. The user name and password should both be a non-empty string. The maximum length is 62 characters. The user name and password credentials defined here are used later while configuring the storage server on the NetBackup server. The credentials defined here have no relation to the system user name or the Veritas Access user name and password.

The user name and password string can contain characters in the printable ASCII range (0x20-0x7E). The exceptions are: asterisk (*), backward slash (\) and forward slash (/), double quote (“), left parenthesis [(] and right parenthesis [)], less than (<) and greater than (>) sign, caret sign (^), percentage sign (%), United States dollar sign ($), spaces, leading and trailing quotes.

Note: If you want to reconfigure Veritas Deduplication using previously used file systems, you have to use the same credentials that you used during the initial configuration.

22.12.4 EXAMPLES

Configure the deduplication server on file system `fs_dedupe, catfs` and IP `10.209.195.204`

```
access> dedupe config fs_dedupe 10.209.195.204 dedupe_user catfs
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

Configure the deduplication server on file systems `fs1, fs2, catfs` and IP `10.209.195.204`

```
access> dedupe config fs1,fs2 10.209.195.204 dedupe_user catfs
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

Configure the deduplication server on file system `fs_dedupe, cat_fs` and IP `10.209.195.204` with worm enabled

```
access> dedupe config fs_dedupe 10.209.195.204 dedupe_user cat_fs enable_worm=yes␣
↪3601s 5000s
Enter Password:
Confirm Password:
Access Appliance dedupe INFO V-493-10-3732 Deduplication server configured␣
↪successfully
```

22.12.5 SEE ALSO

adduser(1), show(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.13 fqdn

22.13.1 SYNOPSIS

`fqdn add` *ip fqdn*

`fqdn remove` *ip*

22.13.2 DESCRIPTION

The fqdn command is used to add and remove FQDN to/from the deduplication server configuration.

22.13.3 OPTIONS

`fqdn add` ***ip fqdn*** Adds the FQDN to the deduplication server.

`fqdn remove` ***ip*** Removes the FQDN from the deduplication server.

22.13.4 EXAMPLES

Add the FQDN to the deduplication server.

```
access> dedupe fqdn add 10.221.54.50 dl740xdg10-20v010.vxindia.veritas.com
Access Appliance dedupe INFO V-493-10-0 Added FQDN to the deduplication server␣
↪configuration successfully.
```

Remove the FQDN from the deduplication server.

```
access> dedupe fqdn remove 10.221.54.50
Access Appliance dedupe INFO V-493-10-0 Removed FQDN from the deduplication server␣
↪configuration successfully.
```

22.13.5 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.14 grow

22.14.1 SYNOPSIS

`grow` *size*

22.14.2 DESCRIPTION

The grow command is used to grow the storage capacity of the deduplication server. The deduplication server should be online for this operation.

22.14.3 OPTIONS

`grow` ***size*** Grows the storage capacity of the deduplication server to the given *size*.

22.14.4 EXAMPLES

Grow the storage capacity of the deduplication server.

```
access> dedupe grow 12G
ACCESS dedupe INFO V-493-10-0 Growing deduplication server Storage...
ACCESS dedupe INFO V-493-10-0 Deduplication Server Storage capacity is grown
successfully.
```

22.14.5 SEE ALSO

config(1), adduser(1), stats(1), show(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1) unconfig(1), setmaxcachesize(1)

22.15 listuser

22.15.1 SYNOPSIS

```
listuser
```

22.15.2 DESCRIPTION

The listuser command shows the list of users who have been added to the deduplication server after the configuration of the deduplication server.

22.15.3 EXAMPLES

Show the list of users of the deduplication server.

```
access> dedupe listuser
List of Users
=============
dedupe_user1
dedupe_user2
```

22.15.4 SEE ALSO

config(1), show(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), adduser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.16 passwd

22.16.1 SYNOPSIS

`passwd` *username*

22.16.2 DESCRIPTION

The passwd command changes the password of the deduplication server user.

22.16.3 EXAMPLES

Change the password of the deduplication server user

```
access> dedupe passwd dedupe_user1
Current password:
New Password:
Confirm new password:
ACCESS dedupe INFO V-493-10-0 Changing password of user dedupe_user1
ACCESS dedupe INFO V-493-10-0 Successfully changed the password of user dedupe_user1
```

22.16.4 SEE ALSO

config(1), show(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), adduser(1), listuser(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.17 removeip

22.17.1 SYNOPSIS

`removeip` *ipaddr*

22.17.2 DESCRIPTION

The removeip command is used to remove an IP from the deduplication server. Ensure that no backup or restore jobs are in progress before running this command as backup or restore jobs may fail if an IP is removed from the deduplication server.

22.17.3 OPTIONS

`removeip` ***ipaddr*** Removes the IP from the deduplication server.

22.17.4 EXAMPLES

Remove the IP from the deduplication server.

```
access> dedupe removeip 10.209.192.216
ACCESS dedupe INFO V-493-10-0 IP has been successfully removed from the deduplication␣
↪server.
```

22.17.5 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), unconfig(1), setmaxcachesize(1)

22.18 setmaxcachesize

22.18.1 SYNOPSIS

```
setmaxcachesize
```

22.18.2 DESCRIPTION

The setmaxcachesize command is used to set the maximum cache size for the deduplication server. The deduplication server should be already configured before you set its maximum cache size. During the execution of this command, the deduplication server is restarted and this may affect any ongoing backups.

22.18.3 EXAMPLES

Set the maximum cache size for the deduplication server.

```
access> dedupe setmaxcachesize 70
ACCESS dedupe INFO V-493-10-0 Restarting the deduplication server....
ACCESS dedupe INFO V-493-10-0 Maximum cache size for deduplication server is␣
↪successfully set to 70%.
```

22.18.4 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1)

22.19 show

22.19.1 SYNOPSIS

```
show
```

22.19.2 DESCRIPTION

The output of this command includes the file system(s) being used, deduplication server status, storage capacity, virtual IP used, percentage of memory usage, maximum cache size, and the IP and the cluster node on which the server is running and whether the deduplication server is WORM-enabled or not. If the deduplication server is WORM-enabled, the minimum and maximum retention time is also displayed.

22.19.3 EXAMPLES

Show information about the deduplication server.

```
access> dedupe show
Parameter                       Value
==============================  ==============
Virtual_IP                      10.209.145.15
Secondary_IP                    10.122.53.126
Catalog_Filesystem              cat_fs
Filesystem                      dedupe_fs
Deduplication_Storage_Size_GB   10
WORM_enabled                    True
Hostname                        r8915-0084567
Server_Status                   ONLINE
Minimum_Retention_Value         3601
Maximum_Retention_Value         3605
Max_Cache_Size                  50%
Percentage_Memory_Usage         3.09%

access> dedupe show
Parameter                       Value
==============================  =============
Virtual_IP                      10.122.53.125
Secondary_IP                    10.122.53.126
Catalog_Filesystem              catfs
Filesystem                      dedupe_fs
Deduplication_Storage_Size_GB   10
WORM_enabled                    False
Hostname                        node-02
Server_Status                   ONLINE
Max_Cache_Size                  50%
Percentage_Memory_Usage         3.07%
Minimum_Retention_Value
Maximum_Retention_Value
```

22.19.4 SEE ALSO

config(1), adduser(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.20 start

22.20.1 SYNOPSIS

```
start
```

22.20.2 DESCRIPTION

The start command is used to start the deduplication server on any of the cluster nodes. The deduplication server should be already configured before starting the deduplication server.

22.20.3 EXAMPLES

Start the deduplication server.

```
access> dedupe start
ACCESS dedupe INFO V-493-10-0 Deduplication server is Started.
```

22.20.4 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), status(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.21 stats

22.21.1 SYNOPSIS

```
stats
```

22.21.2 DESCRIPTION

The stats command displays the deduplication server statistics. The information includes details like total storage size, free storage, and deduplication ratio. The deduplication server should be online for this operation.

22.21.3 EXAMPLES

Show the deduplication server statistics.

```
access> dedupe stats
Parameter                       Value
==============================  =======
Storage_Pool_Used_Space         652.2MB
Deduplication_Ratio             9.5
Catalog_files_Count             23
Storage_Pool_Size               149.9GB
Storage_Pool_Available_Space    149.2GB
Catalog_Logical_Size            101.2KB
Storage_Pool_Raw_Size           158.8GB
Space_Allocated_For_Containers  10.6KB
Storage_Pool_Reserved_Space     8.9GB
```

22.21.4 SEE ALSO

config(1), adduser(1), start(1), show(1), grow(1), catgrow(1), stop(1), status(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.22 status

22.22.1 SYNOPSIS

```
status
```

22.22.2 DESCRIPTION

The status command shows current status of the deduplication server on each node of cluster.

22.22.3 EXAMPLES

Show the current status of the deduplication server.

```
access> dedupe status
Hostname  Status
========  =======
sfsqa-21  OFFLINE
sfsqa-20  ONLINE
```

22.22.4 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), start(1), stop(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.23 stop

22.23.1 SYNOPSIS

```
stop
```

22.23.2 DESCRIPTION

The stop command is used to stop the deduplication server. The deduplication server must be configured and running. If any backup job is running when the server is stopped, the job will abort with an error.

22.23.3 EXAMPLES

Stop the deduplication server.

```
access> dedupe stop
ACCESS dedupe INFO V-493-10-0 Deduplication server is Stopped.
```

22.23.4 SEE ALSO

config(1), adduser(1), stats(1), show(1), grow(1), catgrow(1), start(1), status(1), listuser(1), passwd(1), addip(1), removeip(1), unconfig(1), setmaxcachesize(1)

22.24 unconfig

22.24.1 SYNOPSIS

`unconfig` [destroy_fs={yes|no}]

22.24.2 DESCRIPTION

The unconfig command is used to unconfigure deduplication server on the cluster. After the deduplication server is unconfigured, the file system(s) and the deduplicated data stored on it are not destroyed by default. If destroy_fs is set to 'yes', the file system(s) are destroyed.

22.24.3 EXAMPLES

Unconfigure the deduplication server.

```
access> dedupe unconfig
Access Appliance dedupe INFO V-493-10-3735 Deduplication server unconfigured␣
↪successfully.

access> dedupe unconfig destroy_fs=yes
Access Appliance dedupe INFO V-493-10-3735 Deduplication server unconfigured␣
↪successfully.
```

22.24.4 SEE ALSO

config(1), adduser(1), show(1), stats(1), grow(1), catgrow(1), status(1), start(1), stop(1), listuser(1), passwd(1), adddip(1), removeip(1), setmaxcachesize(1)