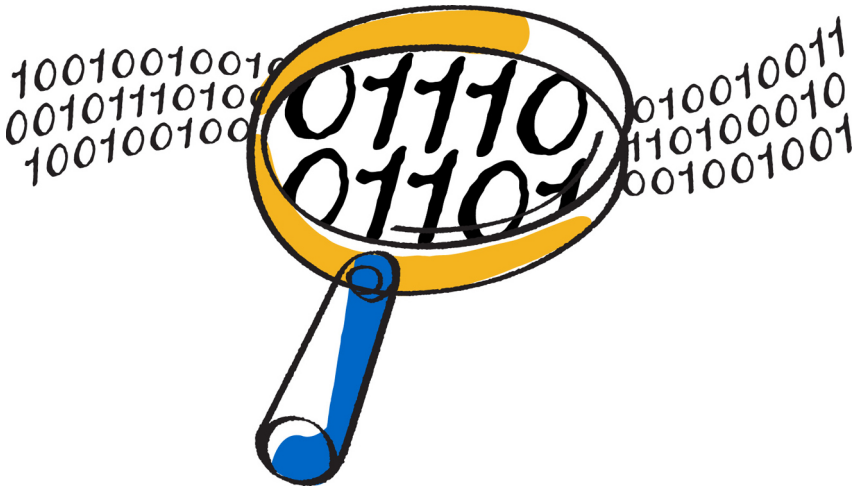
Data ONTAP-v™ Administration Tool 1.2

Command Reference



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Using the Data ONTAP-v administration tool

The Data ONTAP-v administration tool (dvadmin) provides commands for installing and managing Data ONTAP-v-based storage systems, such as the Data ONTAP Edge family of storage solutions.

This manual provides a detailed description of all the dvadmin commands. See the following manuals for information about product installation and usage in storage system environments:

- *Data ONTAP-v Administration Tool Installation Guide* - Describes how to install the Data ONTAP-v Installer virtual machine. This virtual machine contains the dvadmin software in an easy-to-install packaged virtual machine.
- *Data ONTAP Edge Installation and Administration Guide* - Describes how to install and manage Data ONTAP Edge storage systems using dvadmin.

Available commands and command categories

The CLI commands are used to perform an action on a Data ONTAP Edge system or on the host server.

See *Data ONTAP-v administration tool commands* on page 14 for complete details on these commands.

This table lists the available command categories and provides a brief description of their functionalities:

Command	Description
`exit`	Exit the dvadmin session
`help`	Show possible commands and usage details
`history`	Show command history
`host`	Connect dvadmin to a specific ESX host
`network`	Display networks available to the server
`pdisk`	Display physical disks available to the server
`pool`	Create, destroy, and show server storage pools
`source`	Execute dvadmin commands from a file
`ssh`	Display, or enable, SSH connectivity to the ESX host for core file creation
`status`	Display dvadmin status information

Command	Description
`support`	Display detailed information about the host server networks, disks, and virtual machines
`up`	Go up one level when in a command shell
`vm config`	Create a backup of Data ONTAP Edge configuration information, restore a backup, show available backups, and remove old backups
`vm console`	Connect to the Data ONTAP system console, disconnect, and show the console log
`vm coredump`	Forces a core dump for the Data ONTAP Edge storage system
`vm create`	Create or install the Data ONTAP Edge system
`vm destroy`	Delete the Data ONTAP Edge system
`vm disk`	Create, destroy, and show Data ONTAP Edge virtual data disks
`vm headswap`	Reassign data disks from one Data ONTAP-v virtual machine to another for a headswap procedure.
`vm log`	Show and save the Data ONTAP-v virtual machine system log
`vm monitor`	Start and stop the Data ONTAP-v virtual machine monitor, show the monitor status, and show the monitor log
`vm network`	Display Data ONTAP-v virtual machine networks, and connect a Data ONTAP Edge network adapter to a network
`vm prop`	Set, change, and show Data ONTAP Edge configuration properties
`vm restart`	Restart a running Data ONTAP Edge system
`vm savecore`	Extract the contents of an unsaved core dump and save it to a core dump file
`vm serial`	Display Data ONTAP-v virtual machine serial ports
`vm setup`	Start the VM setup wizard to create a Data ONTAP Edge storage system
`vm show`	Display Data ONTAP Edge configuration details
`vm start`	Start a stopped Data ONTAP Edge system
`vm state`	Display the Data ONTAP Edge configuration state
`vm stop`	Stop a running Data ONTAP Edge system
`vm uuid`	Display the Data ONTAP-v virtual machine UUID

Command-line interface usage

The Data ONTAP-v administration tool provides several features to assist you when entering commands on the command line.

When entering commands, be aware of the following general rules:

- If you are entering a command with an element that includes a space, you must quote that element. For example,
  `> pool create "main pool 1" disk_abc`
- Special characters and non-English characters are not supported.
- Do not use a # character in the command string.
  The # character means that the rest of the line is commented out, so dvadmin will ignore any information following the #.
- Use the `exit` command to exit the dvadmin interface and disconnect from the host server. (Note that this does not affect the operational state of the Data ONTAP-v virtual machine.)

Viewing command history

The history feature enables you to view recently entered commands.

Step

1. Do one of the following:

If you want to...	Then...
Scroll backward through commands	Press the Up arrow key or press Ctrl-P.
Scroll forward through commands	Press the Down arrow key or press Ctrl-N.
List the complete history of entered commands	Enter the `history` command.

Using the command-line editor

The command-line editor enables you to position the cursor anywhere in a partially typed command and insert characters at the cursor position.

Step

1. Use the applicable key combination to move the cursor within the same line and edit the command:

If you want to...	Then press...
Move the cursor right one position	Ctrl-f or the Right arrow key

If you want to...	Then press...
Move the cursor left one position	Ctrl-b or the Left arrow key
Move the cursor to the end of the line	Ctrl-e
Move the cursor to the beginning of the line	Ctrl-a
Delete all characters from the cursor to the end of the line	Ctrl-k
Delete the character to the left of the cursor and move the cursor left one position	Ctrl-h
Delete the line	Ctrl-u
Delete a word	Ctrl-w
Reprint the line	Ctrl-r
Abort the current command	Ctrl-c

Getting help on commands

You can use the `help` command to display the list of available commands, or the command syntax for a particular command.

About this task

The fonts and symbols used in the help syntax are as follows:

- `keyword` specifies the name of a command or an option that must be entered as shown.
- `< >` (less than, greater than symbols) specify that you must replace the variable identified inside the symbols with a value.
- `|` (pipe) indicates you must choose one of the elements on either side of the pipe.
- `[ ]` (brackets) indicate that the element inside the brackets is optional.
- `{ }` (braces) indicate that the element inside the braces is required.

Step

1. For command help, enter

   `help [`*`command`*`]`

   - [*`command`*] is the name of a command on which you want help.

   If you do not specify a command, `help` displays a list of all Data ONTAP-v administration tool commands available from the current location.

Example help command output

The following example shows the command syntax and a brief description for the `pool create` command.

```
> help pool create

pool create <pool_name> <canonical_name>
Create a VMFS storage pool
```

The following example shows the command syntax for the `vm disk create` command.

```
> help vm disk create

vm disk create <vm_name> <pool_name> [size]
Create virtual machine disk
```

Accessing command hierarchy levels

dvadmin provides the ability to enter levels (or shells) within the command hierarchy to assist when entering commands on the command line.

About this task

This is useful when you intend to enter many commands at a particular level. For example, if you plan on issuing many commands for a particular Data ONTAP Edge system, you can enter the "vm" command level so that you do not need to enter the Data ONTAP Edge system name for each command.

Steps

1. To enter the command hierarchy level for a particular Data ONTAP Edge system, enter

   `vm` *`vm_name`*

   The prompt changes to the name of the specified Data ONTAP-v virtual machine.

2. To exit the command hierarchy and return to the level that is one level above that, enter the `up` command.

Examples of using hierarchy levels

The following example shows how to enter the "host" command hierarchy level.

```
dvadmin> host esx03.nane.netapp.com

dvadmin host esx03.nane.netapp.com>
```

The following example shows how to enter the "vm" command hierarchy level for the Data ONTAP Edge system named "dotv1".

```
dvadmin> vm dotv1

dvadmin vm dotv1>
```

After this point, every command you issue is addressed to the specific Data ONTAP Edge system. For example, if you want to show all the virtual disks on this storage system, enter `disk show`. If you were at the main prompt you would need to enter `vm disk show dotv1`.

The following example shows the output of the `help` command only when at the Data ONTAP-v level.

```
dvadmin vm dotv1> help

config                  Manipulate a VM's Data ONTAP configuration
    backup              Backup the VM's Data ONTAP configuration
    remove              Remove the named backup configuration
    restore             Restore the VM's Data ONTAP configuration
    show                Display backed up Data ONTAP configurations
console                 Interact with the Data ONTAP-v system console
    connect             Connect to the Data ONTAP-v system console
    disconnect          Disconnect another Data ONTAP-v console
session
    log                 Manipulate Data ONTAP-v console log file(s)
        clear           Clear current console log and rotate old logs
        show            Print the Data ONTAP-v system console log
coredump                Cause the virtual machine to dump core
create                  Create Data ONTAP-v virtual machine.
destroy                 Delete virtual machine
disk                    Manipulate virtual machine disks
    create              Create virtual machine disk
    destroy             Destroy virtual machine disk
    show                Display virtual machine disks
exit                    Exit interpreter
headswap                Reassign configuration from one VM to another
help                    Show possible commands and usage details
history                 Show command history
log                     Access Data ONTAP-v system log file
    save                Save the Data ONTAP-v system log to a file
    show                Print the Data ONTAP-v system log
monitor                 Control virtual machine monitor monitors
    log                 Manipulate VM monitor logs
        clear           Clear current monitor log and rotate old logs
        show            Display the log for a VM monitor
    show                Show information about VM monitor(s)
    start               Start a VM monitor
    stop                Stop a VM monitor
network                 Virtual machine network command(s)
    connect             Connect virtual machine network interface
    show                Display virtual machine network interfaces
prop                    Manipulate virtual machine properties
    set                 Set virtual machine properties.
    show                Display virtual machine properties
    unset               Unset virtual machine properties
restart                 Restart a running virtual machine
```

```
savecore                Save the virtual machine core file
serial                  Manipulate virtual machine serial ports
    show                Display virtual machine serial ports
setup                   Start the VM setup wizard
show                    Display virtual machine details
source                  Execute commands from a file
start                   Start running a virtual machine
state                   Virtual machine state command(s)
    show                Display virtual machine state
status                  Display dvadmin status info
stop                    Stop a running virtual machine
up                      Go up one level
uuid                    Manage VM UUID
    show                Display VM UUID
```

Executing multiple commands from a file

You can execute multiple dvadmin commands from a file using the `source` command. This enables you to perform batch-type operations for multi-step functions that you run frequently.

About this task

The `source` command will read and execute commands (one per line) from the specified file and then return to the command prompt. If an error occurs during execution of any of the commands, dvadmin will exit at that point and return a specific error. Note that dvadmin ignores lines that start with "#" and that you need to put quotation marks around any properties that include spaces.

You can use the `-k` or `--keep-going` option to continue executing all commands within a file even if an error is encountered. In this case, the command returns the CmdFailed error code (15) to inform you that one or more errors were encountered during the command execution. You can redirect the output of this command to a file to capture the individual errors that occurred during execution.

Steps

1. Create a file that contains the commands you want to execute. For example, the file `startsystem.txt` contains the following commands:

```
#this script will set ONTAP properties and start the Data ONTAP-v VM
#add some Data ONTAP properties
vm prop set dotv1 tmz=America/New_York
vm prop set dotv1 dns_domainname=sim.test.com
vm prop set dotv1 dns_ipaddr=10.97.0.11,10.97.0.15
vm prop set dotv1 nis_domainname=lab.test.com
vm prop set dotv1 nis_ipaddr=17.19.4.20,17.19.3.11
#start the VM monitor
vm monitor start dotv1
#start the Data ONTAP-v VM
vm start dotv1
```

2. At the dvadmin prompt, enter the following command:

`source startsystem.txt`

The commands are executed in the specified order to create and start the Data ONTAP Edge system.

Example output from running the `source` command

The following command configures and starts virtual machine "dotv1":

```
> source startsystem.txt

Set tmz = America/New_York
Set dns_domainname = sim.test.com
Set dns_ipaddr = 10.97.0.11,10.97.0.15
Set nis_domainname = lab.test.com
Set nis_ipaddr = 17.19.4.20,17.19.3.11
vm monitor for dotv1 is running
start VM dotv1

>
```

Command-line error functionality

All dvadmin commands return one or more generic errors if conditions warrant. Additionally, some commands can also return command-specific error information.

dvadmin, or the command itself, returns one of the generic error codes specified below:

- **InternalErr** - if the command encountered an internal dvadmin error. Internal errors should be reported to NetApp.
- **CmdNotFound** - if the specified command was not found
- **CmdFailed** - if an error is encountered when attempting to execute the command
- **UsageErr** - if required command argument(s) were not specified, or if too many arguments were specified
- **InvalidArg** - if a specified argument was invalid
- **TaskInProgressErr** - if the ESX server is currently busy with another task

Along with the error code, it displays a message that provides more detail of the actual cause for failure. See *Data ONTAP-v administration tool error codes* on page 76 for the full list of generic and specific errors that can be returned.

Error code example

If you enter the name of the Data ONTAP Edge system incorrectly, you will receive the standard "InvalidArg" error plus additional information about which argument is invalid, as shown below:

```
> vm disk show dotv
```

```
[13] InvalidArg: <vm_name> invalid - no VM named 'dotv'
usage: vm disk show <vm_name>
Display virtual machine disks
>
```

Data ONTAP-v administration tool commands

The available dvadmin commands are listed alphabetically in this chapter.

Errors that can be returned from each command are listed with the command. See *Data ONTAP-v administration tool error return codes* on page 76 for more details.

exit

The `exit` command terminates the dvadmin session and disconnects from the host server.

Syntax

```
exit
```

Description

The `exit` command exits the dvadmin interface and disconnects from the host server.

Terminating dvadmin does not affect the operational state of the Data ONTAP-v virtual machine, nor does it affect running dvadmin monitors.

Parameters

None

Returned errors

None

Example: Exiting the Data ONTAP-v administration session

The following example exits dvadmin and returns to the host server prompt:

```
dvadmin> exit
Logging out Administrator@server.company.com

Do you want to use saved login information
("Administrator"@"server.company.com")? [yes]:
```

You can press **Enter** to log back into the same Data ONTAP-v storage system, or press **Ctrl-** to end the session.

help

The `help` command displays the list of available commands, or the command syntax for a particular command.

Syntax

```
help [command]
```

Description

The `help` command displays the list of commands available from the current location. It can also be used to display the available options, or syntax, for a specific command.

Parameters

[*command*]

The name of a command for which you want help. If you do not specify a command, `help` displays a list of all management commands available from the current location.

Returned errors

- CmdNotFound

Examples: Displaying command help

The following example shows the command syntax and a brief description for the `pool create` command.

```
> help pool create

pool create <pool_name> <canonical_name>
Create a VMFS storage pool
```

The following example shows the available options that can be used with the `vm disk` command.

```
> help vm disk

create             Create virtual machine disk
destroy            Destroy virtual machine disk
show               Display virtual machine disks
```

history

The `history` command displays the list of previously executed commands.

Syntax

```
history
```

Description

The `history` command displays the commands that have been executed from the dvadmin prompt. The shell stores the previous 1,000 commands. The history does not include commands that have been executed using the `source` command.

Note: In addition to the `history` command, the Up arrow key and Down arrow key can be used to view the history of commands.

Parameters

None

Returned errors

None

host

The `host` command logs into a host managed by the vCenter server. Once logged in, you can run all host-level commands.

Syntax

```
host host_name
```

Description

The `host` command connects dvadmin to a specific host so you can manage the Data ONTAP Edge storage system on that host.

Parameters

`host_name`

The name of the host to which you want to log in.

Returned errors

- InternalErr
- CmdFailed
- InvalidArg

Example: Logging in to a specific host

The following command logs you in to host "esx03.nane.netapp.com":

```
dvadmin> host esx03.nane.netapp.com

dvadmin host esx03.nane.netapp.com>
```

host show

The `host show` command displays information about the ESX hosts in a vCenter.

Syntax

```
host show [host_name]
```

Description

The `host show` command displays a list of the ESX hosts in the vCenter to which you are connected. This information is useful in order to connect dvadmin to a specific host.

This command lists all the hosts in the vCenter if you do not specify a host name. If you do specify a host name, the command shows detailed hardware and hypervisor information about the specific host. The detailed information includes the following values:

- Core Mhz - The processing speed of each CPU core on the host
- Usage - The number of cores in use and the total number of cores on the host
- Mem MB - The amount of memory on the host (in MB)
- Usage - The amount of memory currently in use on the host
- NIC - The number of network cards on the host
- HBA - The number of SCSI Host Based Adapters on the host
- Hypervisor - The type and version of the hypervisor running on the host
- Vendor - The manufacturer of the host server

Parameters

[*host_name*]

Optionally, the name of a specific host whose status information you want to show.

Returned errors

- InvalidArg
- InternalErr
- CmdFailed

Examples: Showing host information

The following example shows brief information for all the hosts in the vCenter:

```
dvadmin> host show

Hostname         Core Mhz  Usage  Mem MB  Usage NIC  HBA  Hypervisor
Vendor
esx01.netapp.com     2666   1/ 8   32766   3097   2    4  VMware ESX 4.1
IBM
esx02.netapp.com     2666   1/ 8   32766   1366   2    4  VMware ESX 4.1
IBM
esx03.netapp.com     2266   3/ 8   32766   6866   4    2  VMware ESX 5.0
FUJITSU
esx05.netapp.com     2266   5/ 8    8190   5193   4    2  VMware ESX 5.0
FUJITSU
```

The following example displays detailed information for host "esx03.netapp.com".

```
dvadmin host esx03.netapp.com> show

Hostname         Core Mhz  Usage  Mem MB  Usage NIC  HBA  Hypervisor
Vendor
esx03.netapp.com     2266   3/ 8   32766   6866   4    2  VMware ESX 5.0
FUJITSU

Hardware:
  Model: PRIMERGY BX920 S1
  UUID: 00000000-0000-0000-0000-00238bf3dc54
  BIOS version: 080015 Rev.3B14.2860
  CPU power mgmt: Not available
  Hyperthreading: available
Hypervisor:
  Full name: VMware ESX 5.0.0
  API version: 5.0
  CPU power mgmt policy: Not supported
  Hyperthreading: active
  Firewall defaults:
    incoming: blocked
    outgoing: blocked
```

network show

The `network show` command lists the available networks on the host server.

Syntax

```
network show
```

Description

The `network show` command shows the networks that are available on the host server through the virtual switch. You can use this command to verify that a particular network is available to a host server before you install the Data ONTAP-v on the host.

The following network information is displayed:

- Network name
- Virtual switch name

Parameters

None

Returned errors

- InternalErr
- CmdFailed

Example: Showing server networks

The following example shows the networks that are available to the host server:

```
> network show

Network Name                Virtual Switch
VM Network                  vSwitch0 (828)
Lab4-10.97.12               vSwitch0 (804)
```

pdisk show

The `pdisk show` command lists the physical disks, or LUNs, that are available to the host server.

Syntax

```
pdisk show
```

Description

The `pdisk show` command shows detailed information about the physical disks and LUNs that are available to the host server. These LUNs can be made into storage pools that will be available to the Data ONTAP-v storage system.

The following information is displayed for each physical disk:

- Disk name - the name of the disk or LUN
- Canonical name - the absolute disk name
- Size - the total disk size
- Used by - the name of the pool or virtual machine that is using the storage

Parameters

None

Returned errors

- InternalErr
- CmdFailed

Example: Showing physical disk information

The following command shows the physical disks, and storage pools, that are available from the host server:

```
> pdisk show

Disk Name      Canonical Name       Size (MB)     Used By
ESX_disk_5     5000c50000a96b8f     3640147       Pool_1
```

pool create

The `pool create` command creates a storage pool, or datastore, on the specified disk or LUN.

Syntax

```
pool create pool_name canonical_name
```

Description

A pool represents a storage location for virtual machine configuration files and VMDK disks. The `pool create` command enables you to create storage pools on both local storage and attached SCSI LUNs. Pools can be used as the installation location for the Data ONTAP-v virtual machine, or as the location of virtual data disks.

Note: A storage pool is equivalent to a VMware datastore - a storage container for files. When running vSphere 5.x this command creates a datastore using a VMFS-5 file system.

Parameters

pool_name

The name of storage pool you want to create.

canonical_name

The identifier for the physical disk or LUN that will host the storage pool.

Run the `pdisk show` command to view the canonical name of the disk that will be used for the storage pool.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- PoolCreateErr - Error encountered when attempting to create a pool

Example: Creating a storage pool

The following command creates the storage pool "main_pool_1" using storage from disk "disk_abc".

```
> pool create main_pool_1 disk_abc
```

pool destroy

The `pool destroy` command destroys a storage pool from a disk.

Syntax

```
pool destroy pool_name
```

Description

The `pool destroy` command destroys an existing storage pool, or datastore, from the disk on which it was created. Since a storage pool can contain the Data ONTAP-v data disks or system disks, you must delete those items from the pool first (using the `vm disk destroy` or `vm destroy` commands) before you can destroy the pool. You will receive error message "[53] PoolBusy: Pool main_pool_1 is in use" if the pool is currently being used.

Parameters

`pool_name`

The name of storage pool you want to destroy.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- PoolDestroyErr - Error encountered when attempting to destroy a pool
- PoolBusy - The pool is in use and contains virtual disks

Example: Destroying a storage pool

The following command destroys the storage pool "main_pool_1".

```
> pool destroy main_pool_1
```

pool show

The `pool show` command lists the storage pools available to the host server.

Syntax

```
pool show
```

Description

The `pool show` command shows the available storage pools on the host server.

The following information is displayed for each each pool:

- Pool name
- Type - the type of file system being used, depending on the type of physical disk. For example, NFS or VMFS.
- Access - whether the pool is currently available, or online
- Capacity - total space in the pool
- Available - remaining space in the pool
- Backing store - the actual physical disk, or LUN, that is being used to store the information (as shown in the `pdisk show` command)

Parameters

None

Returned errors

- InternalErr
- CmdFailed

Example: Showing available storage pools

The following command shows the storage pools that are available on the host server:

```
> pool show

Pool Name  Type  Access  Capacity (MB) Available (MB) Backing Store
pool_1     NFS   Online    214748        156254       ESX_disk_5
pool_2     NFS   Online    214748        214072       ESX_disk_6
```

These two pools of storage can be used by the Data ONTAP-v virtual machine.

source

The `source` command enables you to execute multiple dvadmin commands from a file to perform batch-type operations for functions that you run frequently.

Syntax

```
source [-k/--keep-going] file_name
```

Description

The `source` command reads and executes commands from the specified file. If an error occurs during execution of any of the commands, dvadmin exits at that point and displays a specific error. Note that dvadmin ignores lines that start with '#', and that you need to place quotation marks around any properties that include spaces.

Optionally, you can use the *`-k`* or *`--keep-going`* option to continue executing all commands within a file even if an error is encountered. In this case, the command returns the CmdFailed error code (15) to inform you that an error, or errors, were encountered during the command execution. You should redirect the output of this command to a file so you can capture the individual errors that occurred during execution.

See *Executing multiple commands from a file* on page 11 for examples and more information.

Parameters

`[-k / --keep-going]`

Specify this option to continue executing all commands within a file even if an error is encountered.

`file_name`

Name of the file that contains the dvadmin commands.

Returned errors

- InternalErr - internal dvadmin error
- InvalidArg - invalid file name
- <cmd error> - varies depending on the command in the file that failed.

ssh setup

The `ssh setup` command is used to enable SSH connectivity to the ESX host. When SSH is enabled, the `vm coredump` command can be used to capture a Data ONTAP core file.

Syntax

```
ssh setup [ssh_password]
```

Description

The `ssh setup` command is used to enable SSH so you can save a Data ONTAP-v core dump. Use the `ssh status` command to display the status of the SSH connection.

Note: Before issuing this command, the SSH service must be running.

Parameters

[*ssh_password*]

Specifies the root password for the host server. You can leave this option blank if you do not want to enter the password on the command line for security reasons. You will be prompted for the password once you issue the command. This password is not saved on the system.

Note: When you leave this option blank, dvadmin will first try the saved vSphere password (if you elected to save the vSphere password in the VMware credential store) before prompting you to enter the ESX root password. If the vSphere password is the same as the ESX host's root password, then that password is used.

Returned errors

- CmdFailed - if an error is encountered when attempting to execute the command
- PermissionsErr - could not read (or create) the public key file
- HostConfgErr - ESX host is not configured correctly; the SSH service may need to be started
- LoginFailed - non-interactive SSH setup attempt failed

Example: Enabling SSH

The following command enables SSH connectivity to the connected ESX host:

```
> ssh setup
```

```
root@host2.system.company.com password: ********
Non-interactive SSH to 'host2.system.company.com': verified
```

ssh status

The `ssh status` command displays the status of the SSH connection between the Data ONTAP-v virtual machine and the connected ESX host.

Syntax

```
ssh status
```

Description

The `ssh status` command enables you to verify whether SSH connectivity has been enabled between the Data ONTAP-v virtual machine and the connected ESX host. SSH must be enabled in order to perform a core dump operation using the `vm coredump` command.

If the result of this command does not return `verified`, then you should enable SSH using the `ssh setup` command.

Parameters

None

Returned errors

- UsageErr

Example: Checking SSH connectivity

The following command verifies that there is SSH connectivity between the Data ONTAP-v virtual machine and the connected ESX host:

```
> ssh status

Non-interactive SSH to 'host2.system.company.com': verified
```

The following command displays the error that is returned when SSH connectivity has not been enabled between the Data ONTAP-v virtual machine and the ESX host:

```
> ssh status
```

```
Non-interactive SSH to 'host2.system.company.com': FAILED - 'ssh
setup' required
```

status

The `status` command displays the current dvadmin version and host server connection status.

Syntax

```
status
```

Description

The `status` command shows the general host server connection status and the dvadmin version.

The following status information is displayed:

- dvadmin version
- vCenter Server name
- User who is connected to the server
- VMware vSphere SDK for Perl version
- Console escape key
- Host server name (if dvadmin is currently connected to a host)
- Data ONTAP-v Installer version

Parameters

None

Returned errors

None

Example: Showing server status

The following example shows brief server status information:

```
> status

Version: 1.x.x
Server: vc1.server.company.com
User: Administrator
VMware SDK version: 5.0
Console escape key: ^]
```

```
Host: esx01.company.com
Installer Version: 8.x.x.1yy
```

support show

The `support show` command displays detailed information about the host server to which dvadmin is connected. This command is typically used only when requested by technical support personnel.

Syntax

```
support show
```

Description

The `support show` command provides detailed information about the networks, datastores (pools), disks, and virtual machines on the host server to which dvadmin is connected. For details about the information provided in this display, see the descriptions for the following commands:

- `status`
- `network show`
- `pdisk show`
- `pool show`
- `vm show`

Parameters

None

Returned errors

- CmdFailed
- InternalErr
- UsageErr

Example: Showing server details

The following example shows output for the hosts on the vCenter Server "vc1.system.company.com":

```
> support show

dvadmin status:
Version: 1.x.x
Server: vc1.system.company.com
User: Administrator
VMware SDK version: 5.0
```

```
Console escape key: ^]
Host: esx01.system.company.com
Installer Version: 8.x.x.1yy

Available networks:
Network Name              Virtual Switch
VM Network                vSwitch0 (828)

Available physical disks:
Disk Name    Canonical Name     Size (MB)    Used By
ESX_disk_5   5000c50000a96b8f   5640147      Pool_1

Available datastores:
Pool Name   Type   Access   Capacity (MB)  Available (MB)  Backing Store
pool_1      NFS    Online    2147480        1562540        ESX_disk_5
pool_2      NFS    Online    2147480        2140720        ESX_disk_6

Available virtual machines:
VM Name   Power   CfgState   Heartbeat   Hostname   IP Address
mgmt_vm   on      -          green       system1    10.10.10.2
dotv1     on      ready      green       system2    10.10.10.1

================================================
Detail information for vm dotv1:
VM Version  Data ONTAP Version    Serial Number  System ID
1.x         8.x.x                2006000000015  2147483903

Disk Name     Ctrl:Unit  Size (MB)  UUID           Backing
Hard disk 1   ide0:0       1057     -              pool_1
Hard disk 2   ide0:1       1542     -              pool_1
Hard disk 3   ide1:0       5121     -              pool_1
Hard disk 4   scsi0:0      335542   <uuid-string>  pool_2

Adapter Name          MAC Address           Network Name
Network adapter 1     00:0c:29:18:eb:f4     VM Network
Network adapter 2     00:0c:29:18:eb:fe     VM Network
Network adapter 3     00:0c:29:18:eb:08     VM Network
Network adapter 4     00:0c:29:18:eb:12     VM Network
Network adapter 5     00:0c:29:18:eb:3f     VM Network
Network adapter 6     00:0c:29:18:eb:24     VM Network

Serial Name        Port  Conn  Status           Details
Serial port 1      0     Y     ok               Remote tcp://:7200
Serial port 2      1     Y     ok               Pipe dotv1_serial_1

Resource              Reservation
CPU                   5332 MHz
Memory                4096 MB
```

up

The up command is used to move up a level in the dvadmin sub-shell.

Syntax

```
up
```

Description

The `up` command is used to return from the sub-shell to the previous level. dvadmin will display a message that you are at the top level if the command is used at the top level.

This is very useful if you are using a single instance of dvadmin to manage multiple Data ONTAP Edge systems that belong to the same vCenter Server. The `host` command moves you to the host sub-shell, and the `up` command moves you back up to the vCenter Server level.

Parameters

None

Returned errors

None

Example: Moving up to the vCenter prompt

The following command moves up from the "esx03.nane.netapp.com" host shell to the connection to the vCenter Server:

```
dvadmin host esx03.nane.netapp.com> up

dvadmin>
```

vm config backup

The `vm config backup` command writes Data ONTAP-v system and configuration information to the pool where the Data ONTAP-v is installed.

Syntax

```
vm config backup vm_name [backup_name]
```

Description

The `vm config backup` command creates a backup of Data ONTAP-v system information, including the virtual machine configuration (excluding data disks), and all of the information on the Data ONTAP-v system disks.

Note: It is recommended that you enable the Data ONTAP-v administration tool monitor so that backups to disk are performed automatically.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine that you want to back up.

[*backup_name*]

Optionally enables you to specify a name for the backup. If you do not specify a backup name, the name `data-ontapv-sys-backup` will be used.

The backup name can be a maximum of 64 characters, and it can contain only alphanumeric characters (A-Z, a-z, 0-9), underscores, hyphens, and periods.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmBackupErr - Failed to backup configuration

Example: Creating a backup

The following command creates a system backup with the name `2010_06_25`:

```
> vm config backup dotv1 2010_06_25

Created config backup 2010_06_25
```

vm config remove

The `vm config remove` command enables you to delete old Data ONTAP-v backup files.

Syntax

```
vm config remove vm_name backup_name
```

Description

The `vm config remove` command enables you to delete old backup files when you are sure you will not need them. This is useful because over time system backup files will begin to take up a large amount of disk space. Use the `vm config show` command to view the names of all saved backups.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine file that you want to remove.

backup_name

The name of the backup that you want to delete.

Returned errors

- InternalErr
- UsageErr
- InvalidArg

Example: Deleting a backup

The following command deletes the system backup with the name `2010_06_25`:

```
> vm config remove dotv1 2010_06_25

Removed config backup 2010_06_25
```

vm config restore

The `vm config restore` command enables you to restore a backed up Data ONTAP-v configuration.

Syntax

```
vm config restore vm_name [backup_name]
```

Description

The `vm config restore` command restores a backed up Data ONTAP-v configuration and system disks. It uses the last known good Data ONTAP-v backup (or a specified backup) and restores it to the primary location, in the case where the system disks have been accidentally lost or corrupted. Once you restart the Data ONTAP-v virtual machine, it will boot up using the restored configuration information.

Note: A restore operation will overwrite the existing configuration information, so you should perform a restore only when necessary.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to be restored.

[*backup_name*]

Optionally enables you to specify the name of a specific backup that exists for the Data ONTAP-v virtual machine. You can view the list of available backup files by using the `vm config show` command. If you do not specify a backup name, the restore is performed using the most recent backed up configuration.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmRestoreErr - Failed to restore configuration

Example: Restoring a backup

The following command restores Data ONTAP-v system and configuration information from a named backup:

```
> vm config restore dotv1 2010_06_25

Restored config backup '2010_06_25'
```

vm config show

The `vm config show` command displays the list of stored Data ONTAP-v backup files.

Syntax

```
vm config show vm_name
```

Description

The `vm config show` command displays a list of the system backups that are available for the current Data ONTAP-v storage system. This includes the system-generated backups (if the monitor is running) and any manually-generated backups.

The list shows the available backup files in order from the oldest backup to the newest backup. Backups are named using three naming conventions:

- monitor-backup - automatic backups performed by the dvadmin monitor
- data-ontapv-sys-backup - manual backups where no *`backup_name`* was entered
- "backup_name" - manual backups where a *`backup_name`* was entered, for example, "2010_06_25"

The backups named with .1 appended are the older versions. For example, when you make a manual backup, the file "data-ontapv-sys-backup" is created. The next time you create a manual backup, the original file "data-ontapv-sys-backup" is renamed to "data-ontapv-sys-backup.1", and the new backup is named "data-ontapv-sys-backup".

Parameters

vm_name

The name of the Data ONTAP-v virtual machine that contains the backups.

Returned errors

- InternalErr
- UsageErr
- InvalidArg

Example: Showing available backups

The following command shows all Data ONTAP-v configuration backups:

```
> vm config show dotv1

Name                              Created
data-ontapv-sys-backup.1          2010-07-15T15:57:41.7737-04:00
monitor-backup                    2010-07-15T15:58:59.577038-04:00
07_16_2010                        2010-07-16T15:59:16.083756-04:00
data-ontapv-sys-backup            2010-07-16T16:04:44.92985
```

vm console connect

The `vm console connect` command enables you to attach to the Data ONTAP-v console in order to manage the storage system.

Syntax

```
vm console connect [--force] vm_name
```

Description

The `vm console connect` command enables you to connect to the Data ONTAP-v system console in order to interface with Data ONTAP to administer your storage system. The system console enables you to use the Data ONTAP command line interface. Note that there can be only one console connection at a time.

You will need to enter the Data ONTAP root password before you can configure Data ONTAP system settings.

Parameters

`[--force]`

Optionally enables you to force the connection to the console. This option can be used if a previous console session ended abnormally and left the console in an undetermined state, or if you want to first disconnect another console session.

`vm_name`

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmSerialConnectErr - Unable to connect to the serial port for console connection
  If this error message includes information about a firewall issue, you will need to either disable the ESX firewall, or enable the firewall rule for "remoteSerialPort".

Example: Connecting to the Data ONTAP-v console

The following example shows how to access the storage system console for Data ONTAP-v "dotv1":

```
> vm console connect dotv1

Connected to console on dotv1.
Use ^]-x to exit or ^]-h for help.
...
...
Password: XYZ123
host_system_1>
Thu Jun 3 09:46:38 EST [console_login_mgr:info]: root logged in
from console
```

Use the escape key sequence `Ctrl-] x` (press the "Ctrl" and "right bracket" keys together, then press the "x" key) to exit the console and return to the dvadmin administration prompt.

Note: If you changed the escape key value, then that new value is displayed in place of `^]`.

vm console disconnect

The `vm console disconnect` command enables you to disconnect another connected Data ONTAP-v console session.

Syntax

```
vm console disconnect [--force] vm_name
```

Description

The `vm console disconnect` command enables you to disconnect a Data ONTAP-v console session that is active from another machine.

Parameters

`[--force]`

Optionally enables you to force the console disconnection. This option can be used if the console session is not disconnected and you receive the "VmConsoleNotStopping" error.

`vm_name`

The name of the Data ONTAP-v virtual machine whose console connection you want to disconnect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmConsoleNotStopping - The console session was not disconnected

Example: Disconnecting another Data ONTAP-v console session

The following example shows how to disconnect another Data ONTAP-v console session from the virtual machine "dotv1":

```
> vm console disconnect dotv1
```

vm console log clear

The `vm console log clear` command restarts the console log for the specified Data ONTAP-v.

Syntax

```
vm console log clear vm_name
```

Description

The `vm console log clear` command saves the existing console log to a file and then starts a new, empty console log.

There can be a maximum of 10 log files: the current log, and logs 1 through 9. When you restart the console log, the current log becomes log file "1", "1" becomes "2", and so on until there is a log "9". When log "8" becomes log "9", the old log "9" is deleted.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- CmdFailed
- UsageErr
- InvalidArg

Example: Restarting the console log

The following example restarts the storage system console log for Data ONTAP-v "dotv1":

```
> vm console log clear dotv1
VM console log cleared for dotv1
```

vm console log show

The `vm console log show` command displays a log of the storage system console output from the connected Data ONTAP-v.

Syntax

```
vm console log show vm_name [n]
```

Description

When the Data ONTAP-v monitor is running, storage system console output from the connected Data ONTAP-v is captured in a log. The `vm console log show` command enables you to view the contents of this log. This enables you to see the Data ONTAP activity for the specified storage system.

By default, this command shows the most recent log file. If you have used the `vm console log clear` command to start a new log file, you can view older log files by entering the number of the log file.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

[*n*]

The number of the saved log file that you want to view, where *n* is a number from 1 to 9. If you do not enter a number, the current log file is shown.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- CmdFailed

Example: Showing the console log

The following example shows a small portion of the contents of the console log for Data ONTAP-v "dotv1" (hosted on virtual machine "host_vsa_1"):

```
> vm console log show dotv1

Password:
host_vsa_1> Tue May  4 10:47:15 EST [console_login_mgr:info]: root
```

```
logged in from console
host_vsa_1> uptime
 10:50am up  1:21 0 NFS ops, 0 CIFS ops, 0 HTTP ops, 0 FCP ops, 0
iSCSI ops
host_vsa_1> sysconfig -p
        Physical Host Info:
        VM UUID:                564d1887-15c2-0415-88d4-6e0dfb4d947d
        Hardware Vendor:
        Model:
        Software Vendor:        NetApp
host_vsa_1> vmservices vsphere credential show
server=dsmnn0.company.com
username=root
...
```

vm coredump

The `vm coredump` command forces the Data ONTAP-v storage system to dump a core file in the case where the storage system has failed.

Syntax

```
vm coredump                 vm_name [temp_directory]
```

Description

Core dumps are typically generated automatically when a hardware or software failure causes Data ONTAP to panic. A core dump file contains the contents of memory and NVRAM. This information can be used by support personnel to help determine the cause of the problem.

In some cases, the storage system can get in a hanged state where it is unusable. In such cases, you can use the `vm coredump` command to force the Data ONTAP-v system to dump a core file and reset the storage system. The core dump file is compressed and written to `/etc/crash` on the Data ONTAP-v system boot disk.

For this command to run successfully, SSH connectivity must be enabled between the host server and the virtual machine on which dvadmin is installed. Run the `ssh status` command to see whether SSH connectivity is enabled. If SSH is not enabled, you must run the `ssh setup` command to enable it.

See the *Data ONTAP System Administration Guide for 7-Mode* for more information about core files.

Note: The core dump operation will fail if the virtual machine is not powered "on." You can check the Data ONTAP-v virtual machine state using the `vm state show` command. You will need to start the virtual machine if it is "off" or "suspended."

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

[*temp_directory*]

By default, the memory image is written temporarily to the directory `/var/tmp` on the pool where the management virtual machine is installed. This directory should have at least the same amount of available space as the amount of memory used by the Data ONTAP-v virtual machine (for example, 4 GB). If there is not enough free space in this location, you will receive an error message. In that case, you can specify an alternate directory for these temporary files.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VMCoredumpErr - Cannot dump core, or a core dump operation is currently in progress

Example: Creating a Data ONTAP-v core dump

The following command creates a core dump, and temporarily writes the memory image to the directory `/var/dump`:

```
> vm coredump dotv1 /var/dump

forcibly suspend VM dotv1
Copying memory image file
Processing vmss file
EIP on CPU 0 is 0xffffffff9f322026
EIP on CPU 1 is 0xffffffff8019963c
Writing vmss file
Resuming VM
start VM dotv1
```

vm create

The `vm create` command creates the Data ONTAP-v storage appliance on a specified host server.

Syntax

```
vm create vm_name pool_name nv_pool_name network_name
propertyN=valueN ...
```

Description

The `vm create` command creates the Data ONTAP-v storage appliance and installs it on a specified host server. It checks the values you enter to make sure they are valid. For example, it will check that the pool names exist, that the license has the correct number of characters and hyphens, and that the gateway exists. If this command encounters an error during creation of the Data ONTAP-v virtual machine, it will stop the installation and undo any changes before returning control to the command line.

Note that the command *vm setup* on page 68 can also be used to create a Data ONTAP-v storage appliance. It prompts you for all the configuration information that will define your Data ONTAP Edge storage system. The setup wizard replaces many individual dvadmin commands that you would otherwise need to enter in order to create the virtual machine.

The `vm create` command can also be used to create a replacement Data ONTAP-v virtual machine if the original Data ONTAP-v virtual machine has been corrupted. When used to create a replacement virtual machine, some of the command options are different. See "Replacing a Data ONTAP Edge system while preserving data disks" in the *Data ONTAP Edge Installation and Administration Guide* for complete information.

Parameters

vm_name

The name you want to call the Data ONTAP-v virtual machine.

pool_name

The name of the local storage pool backing the Data ONTAP-v. This pool must already exist.

nv_pool_name

The name of storage pool backing the virtual NVRAM. This can be the same as *pool_name*, but it is highly recommended that it be a separate pool that is backed by a storage device with a battery-powered write cache.

network_name

The name of the network to which the six adapters should be connected.

propertyN=valueN

The Data ONTAP property and value to be set. Multiple properties and value pairs must be entered.

The required Data ONTAP properties are described in the table below. These properties must be entered in the format `property=value`:

Property name	Type	Description
`license=`*license*	string	The unique 24-character Data ONTAP-v platform license.

Property name	Type	Description
`hostname=`*`hostname`*	string	The host name by which the storage system is known on the network (corresponds to the primary IP address).
`ipaddr=`*`ipaddr`*	ip	The primary Data ONTAP-v interface (e0a) IP address.
`netmask=`*`netmask`*	ip	The primary Data ONTAP-v interface (e0a) netmask.
`gateway=`*`gateway`*	ip	The gateway that is used for network connectivity.
`password=`*`password`*	string	The administrative password for the Data ONTAP root account.
`vsphere_username=`*`user`*	string	The username for read-only access to the virtual machine host (vSphere server).
`vsphere_password=`*`password`*	string	The password for read-only access to the virtual machine host (vSphere server).

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmCreateIOErr - I/O error encountered when creating the virtual machine
- VmCreateOvfErr - OVF package processing error
- VmDiskCreateErr - The NVRAM disk could not be relocated

Example: Creating the Data ONTAP-v virtual machine

The following command creates a Data ONTAP Edge storage system that will be named "dotv1" and installs it onto the storage area defined by "disk_pool_1". The space for the Data ONTAP-v NVRAM disk will be from "disk_pool_2":

```
> vm create dotv1 disk_pool_1 disk_pool_2 network_1
 license=XXXX-YYYY-XXXX-YYYY-ZZZZ hostname=storage_1
 ipaddr=10.10.10.10 netmask=255.255.255.0 gateway=10.10.10.1
 password=xxxyyy111 vsphere_username=user vsphere_password=pswd123

Extracting OVF package contents.
Creating VM dotv1 on host name.company.com.
Uploading disks to VM dotv1
Marked VM disks independent-persistent
Added serial console and gdb ports
Created VM dotv1 on host host name.company.com.
```

vm destroy

The `vm destroy` command deletes the Data ONTAP software instance and the virtual machine on which it is installed.

Syntax

```
vm destroy vm_name
```

Description

The `vm destroy` command destroys (removes) the Data ONTAP-v virtual machine from the host server. This deletes the Data ONTAP software instance and the virtual machine.

Destroying Data ONTAP-v deletes the virtual machine and the system disks where Data ONTAP-v resides. It does not, however, delete the data disks that Data ONTAP-v is managing. If you attempt to delete a Data ONTAP-v virtual machine that contains data disks, you will receive error "[83] VmDestroyErr: cannot destroy vm 'vm_name', it contains data disks". You need to either reassign the data disks to a new Data ONTAP-v virtual machine, or manually delete the data disks, before deleting the virtual machine.

Note: Because the storage pools are created on the host server outside of the virtual machine, you may want to destroy any storage pools that the storage system was using after you destroy the Data ONTAP-v virtual machine. You cannot destroy a storage pool if another virtual machine is using it.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine that you want to destroy.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmDestroyErr - Error encountered when destroying the virtual machine

Example: Destroying the Data ONTAP-v

The following command destroys Data ONTAP-v "dotv1":

```
> vm destroy dotv1

Deleting VM dotv1
```

vm disk create

The `vm disk create` command creates a data disk that will be used for storage for the specified Data ONTAP-v virtual machine.

Syntax

```
vm disk create vm_name pool_name [size <k|m|g|t>]
```

Description

The `vm disk create` command creates a virtual data disk, which is a disk that Data ONTAP-v manages as application storage.

You must define one or more virtual data disks that Data ONTAP-v will be responsible for managing. The virtual disks are created within the storage pools that you defined with the `pool create` command. A virtual disk can consume the entire space from the specified storage pool or just a portion of the storage pool. Also, multiple virtual disks can be created in a single storage pool.

When a virtual disk is created, the SCSI controller and unit number are automatically selected in a round-robin manner. This is done to optimally lay out the data disks across all four available controllers. The Data ONTAP-v virtual machine can manage a maximum of 60 disks. Each virtual disk you add is given the name of the next virtual hard disk, for example, "Hard disk 4," "Hard disk 5," and so on. Use the `disk show` command for more information.

Note: The Data ONTAP-v virtual machine must be powered off before executing this command.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

pool_name

The name of storage pool that will host the virtual disk.

[*size <k|m|g|t>*]

A whole number followed by a byte unit character that defines the size of the disk. If the size is not specified, a virtual disk that spans all the space available on the storage pool (or physical disk) will be created. The minimum disk size is 1 GB, and the maximum disk size is 2 TB. The byte unit character is one of the following values:

- *k* - kilobyte
- *m* - megabyte
- *g* - gigabyte
- *t* - terabyte

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmDiskCreateErr - Error encountered when creating the virtual disk
- VmDiskNoPorts - No more SCSI ports are available

Example: Creating a data disk

The following command creates a 500 GB virtual data disk from storage pool "mainpool_1".

```
> vm disk create dotv1 mainpool_1 500g

Adding disk [1:0] backed by [mainpool_1] dotv1/dotv1_3.vmdk
```

vm disk destroy

The `vm disk destroy` command destroys a data disk that was being managed by Data ONTAP-v.

Syntax

```
vm disk destroy vm_name vdisk_name
```

Description

The `vm disk destroy` command destroys a data disk: a disk that Data ONTAP-v manages as application storage. Use the `disk show` command to view the name of the virtual disk that you want to destroy.

Since a virtual disk contains the data Data ONTAP-v is managing, make sure you move the information to another disk before you destroy the old disk.

Note: The Data ONTAP-v virtual machine must be powered off before executing this command.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

vdisk_name

The name of the data disk to be destroyed. It is specified as `scsiC:N` where, *`C`* is the controller number, and *`N`* is the unit number, for example, "scsi2:0". Note that you cannot destroy any of the system disks used by Data ONTAP-v.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmDiskDestroyErr - Error encountered when destroying the virtual disk

Example: Destroying a virtual disk

The following command destroys virtual disk "scsi2:0" from Data ONTAP-v "dotv1".

```
> vm disk destroy dotv1 scsi2:0

Deleting disk 'Hard disk 5' backed by [pool_2] dotv1/dotv1_4.vmdk
```

vm disk show

The `vm disk show` command shows the virtual disks that the Data ONTAP-v is using and managing.

Syntax

```
vm disk show vm_name
```

Description

The `vm disk show` command displays the name, the size, and the backing pool for each virtual disk that the Data ONTAP-v virtual machine is using and managing.

There are two types of virtual disks that appear in the output of this command:

- System disks - These are the disks that are used internally by Data ONTAP-v for NVRAM and system storage. Three IDE system disks are created automatically when Data ONTAP-v is installed.
- Data disks - These are the disks that Data ONTAP-v manages as application storage. You must create one, or more, SCSI data disks using the `vm disk create` command.

The following information is displayed for each virtual disk:

- Disk name
- Ctrl:Unit - the physical name/location of the virtual disk as seen by the disk controller. It is displayed as *<disk_type><controller>:<unit>*, where:
  - *disk_type* is either *ide* or *scsi*
  - *controller* is the controller number. The storage system can manage a maximum of four SCSI controllers.
  - *unit* is the unit number. Each SCSI controller can manage a maximum of 15 disks.
- Size - size, in megabytes, of the virtual disk
- UUID - the Universally Unique Identifier (UUID) of the virtual disk
- Backing - the name of the storage pool that is backing the virtual disk

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- InvalidArg
- CmdFailed

Example: Showing virtual disk information

The following command shows the virtual disks on Data ONTAP-v "dotv1" :

```
> vm disk show dotv1

Disk Name     Ctrl:Unit  Size (MB)  UUID           Backing
Hard disk 1   ide0:0      1057      -              pool_1
Hard disk 2   ide0:1      1542      -              pool_1
Hard disk 3   ide1:0      5121      -              pool_1
Hard disk 4   scsi0:0     33554     <uuid-string>  pool_2
Hard disk 5   scsi1:0     33554     <uuid-string>  pool_2
```

The three virtual system disks are backed by the pool of storage "pool_1". The two virtual data disks are backed by the pool of storage "pool_2", and they are both 32 GB in size.

vm headswap

The `vm headswap` command reassigns data disks from one Data ONTAP-v virtual machine to another virtual machine.

Syntax

```
vm headswap source_vm_name destination_vm_name
```

Description

The `vm headswap` command moves data disks from one Data ONTAP-v virtual machine to another Data ONTAP-v virtual machine. This command is used as part of the procedure to redeploy a damaged Data ONTAP-v virtual machine and move its data disks to a new Data ONTAP-v virtual machine. See "Replacing a Data ONTAP Edge system while preserving data disks" in the *Data ONTAP Edge Installation and Administration Guide* for complete instructions.

Note: Both the source and destination virtual machines must be powered off before you execute this command.

Parameters

source_vm_name

The name of the Data ONTAP-v virtual machine that is currently managing the data disks.

destination_vm_name

The name of the Data ONTAP-v virtual machine to which the data disks will be reassigned.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmDiskReassignErr - Failed to reassign disks

Example: Reassigning data disks to a new Data ONTAP-v virtual machine

The following command moves the data disks from Data ONTAP-v "dotv1" to Data ONTAP-v "dotv2".

```
> vm headswap dotv1 dotv2
```

vm log save

The `vm log save` command saves the VMware virtual machine log file (`vmware.log`) to a user-defined file name for the connected Data ONTAP-v system.

Syntax

```
vm log save vm_name logfile
```

Description

The VMware virtual machine log keeps a record of key virtual machine activity. This file can be useful for local or remote troubleshooting if you encounter problems. The `vm log save` command enables you to save the log file at that point in time to a file. This file could be sent to the support organization to help diagnose a problem.

The virtual machine logs reside in the same directory as the virtual machine's configuration files. You should periodically delete old log files from this directory as the files can get large. See the VMware documentation for more information about virtual machine log files.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

logfile

The unique name for the saved log file. If you specify a directory in which the file should be created, the directory must already exist.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmLogErr - Failed to read log file from server, or to save it locally

Example: Saving a virtual machine log file

The following example saves the contents of the virtual machine log for Data ONTAP-v "dotv1" to the file "2010_07_15.log":

```
> vm log save dotv1 2010_07_15.log
```

The extension ".log" is not required, but it is recommended so as to distinguish the file from other files in the directory.

vm log show

The `vm log show` command displays the VMware virtual machine log file (`vmware.log`) from the connected Data ONTAP-v virtual machine.

Syntax

```
vm log show vm_name
```

Description

The VMware virtual machine log keeps a record of key virtual machine activity. This file can be useful for troubleshooting if you encounter problems. The `vm log show` command enables you to view the contents of this log. There is also a `vm log save` command available so you can save a particular log file with a specific name. This file could be sent to the support organization to help diagnose a problem.

Note that this log can get very large. See the VMware documentation for more information about virtual machine log files.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmLogErr - Failed to read log file

Example: Showing the virtual machine log

The following example shows a small portion of the contents of the virtual machine log for Data ONTAP-v "dotv1":

```
> vm log show dotv1

...
May 04 11:32:02.792: vmx| Creating virtual dev for scsi0:0
May 04 11:32:02.796: vmx| DumpDiskInfo: scsi0:0 createType=11,
capacity = 67108864, numLinks = 1, allocationType = 3
May 04 11:32:02.808: vmx| SCSIDiskESXPopulateVDevDesc: Using FS
backend
May 04 11:32:02.825: vmx| DISK: OPEN scsi1:0 '/vmfs/volumes/
60dc6dba-3c503224/dotv1/dotv1_4.vmdk' independent-persistent R[]
May 04 11:32:03.025: vmx| DISKLIB-VMFS  : "/vmfs/volumes/
60dc6dba-3c503224/dotv1/dotv1_4-flat.vmdk" : open successful (10)
size = 34359738368, hd = 986123. Type 3
May 04 11:32:03.025: vmx| DISKLIB-DSCPTR: Opened [0]: "dotv1_4-
flat.vmdk" (0xa)
May 04 11:32:03.025: vmx| DISKLIB-LINK  : Opened '/vmfs/volumes/
60dc6dba-3c503224/dotv1/dotv1_4.vmdk' (0xa): vmfs, 67108864
sectors / 32 GB.
May 04 11:32:03.055: vmx| DISKLIB-LIB   : Opened "/vmfs/volumes/
60dc6dba-3c503224/dotv1/dotv1_4.vmdk" (flags 0xa).
May 04 11:32:03.068: vmx| Creating virtual dev for scsi1:0
May 04 11:32:03.073: vmx| DumpDiskInfo: scsi1:0 createType=11,
capacity = 67108864, numLinks = 1, allocationType = 3
May 04 11:32:03.083: vmx| SCSIDiskESXPopulateVDevDesc: Using FS
backend
May 04 11:32:03.648: vmx| SnapshotVMX done with snapshot 'monitor-
backup': 3
...
```

vm monitor log clear

The `vm monitor log clear` command restarts the monitor log for the specified Data ONTAP-v virtual machine.

Syntax

```
vm monitor log clear vm_name
```

Description

The `vm monitor log clear` command saves the existing monitor log to a file and then starts a new, empty monitor log.

There can be a maximum of 10 log files: the current log, and logs 1 through 9. When you restart the monitor log, the current log becomes log file "1", "1" becomes "2", and so on until there is a log "9". When log "8" becomes log "9", the old log "9" is deleted.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- CmdFailed
- UsageErr
- InvalidArg

Example: Restarting the monitor log

The following example restarts the monitor log for Data ONTAP-v "dotv1":

```
> vm monitor log clear dotv1

VM monitor log cleared for dotv1
```

vm monitor log show

The `vm monitor log show` command displays a log of the Data ONTAP-v virtual machine monitor activity.

Syntax

```
vm monitor log show vm_name [n]
```

Description

The virtual machine monitor log tracks all monitor activity. Activity includes when the monitor was started, what options (if any) were used when it was started, when automatic backups were perfomed, and more. The `vm monitor log show` command enables you to view the contents of this log.

By default, this command shows the most recent log file. If you have used the `vm monitor log clear` command to start a new log file, you can view older log files by entering the number of the log file. The logs are stored in `/var/log/dvadmin`.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

[*n*]

The number of the saved log file that you want to view, where *n* is a number from 1 to 9. If you do not enter a number, the current log file is shown.

Returned errors

- UsageErr
- InvalidArg
- CmdFailed

Example: Viewing the monitor log

The following example shows the contents of the current virtual machine monitor log for Data ONTAP-v "dotv1":

```
> vm monitor log show dotv1

Tue May 4 11:21:04 EDT 2010: *** started VM monitor for dotv1
  log=1 watchdog=1 backup=1
Tue May 4 11:21:05 EDT 2010: connected to vSphere server
  dsmnn0.company.com as root
Tue May 4 11:21:19 EDT 2010: VM power state is poweredOn
Tue May 4 11:21:19 EDT 2010: guest heartbeat status is green
Tue May 4 11:21:19 EDT 2010: backing up Data ONTAP system disks
Tue May 4 11:21:41 EDT 2010: backup done
Tue May 4 11:30:37 EDT 2010: exiting: TERM
Tue May 4 11:31:44 EDT 2010: *** started VM monitor for dotv1
 log=1 watchdog=0 backup=1
Tue May 4 11:31:44 EDT 2010: connected to vSphere server
 dsmnn0.company.com as root
...
```

You can see the following activities in this log:

- The monitor was started at 11:21:04 with logging, watchdog, and automatic backup all enabled (value equal to 1).
- An automatic configuration backup was completed at 11:21:41.
- The monitor was stopped at 11:30:37.
- The monitor was started again at 11:31:44 with logging and backup enabled, but with watchdog disabled (value equal to 0).

vm monitor show

The `vm monitor show` command displays whether the Data ONTAP-v virtual machine monitor is running, and which options were set when it was started.

Syntax

```
vm monitor show vm_name
```

Description

The `vm monitor show` command shows whether or not the Data ONTAP-v virtual machine monitor is running.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- UsageErr
- InvalidArg
- InternalErr

Examples: Showing the monitor status

The following command shows the Data ONTAP-v monitor status when it was started with no options:

```
> vm monitor show dotv1

 vm monitor for dotv1 is running with no options
```

The following command shows the monitor status when it was started with the "--no-watchdog" option:

```
> vm monitor show dotv1

 vm monitor for dotv1 is running with options --no-watchdog
```

vm monitor start

The `vm monitor start` command enables you to start the Data ONTAP-v virtual machine monitor. The monitor is launched in the background and you are returned to the command prompt.

Syntax

```
vm monitor start [--no-backup] [--no-console-log] [--no-watchdog] [--
watchdog-no-coredump] vm_name
```

Description

The Data ONTAP-v virtual machine monitor is not started automatically. You must use the `vm monitor start` command to start it if you want to enable the monitor functionality.

By default, when you start the monitor it will enable the following features:

- Data ONTAP-v console logging
- Data ONTAP-v watchdog
- Data ONTAP-v automatic backup

Using the provided command options, you can start the monitor with or without each of these features. Use the `vm monitor show` command to display the features that are currently active.

Note: The monitor will stop when the virtual machine on which dvadmin is installed is stopped. However, the monitor will be restarted automatically once the virtual machine is restarted.

Parameters

`[--no-backup]`

Optionally starts the monitor without enabling the automatic backup functionality.

`[--no-console-log]`

Optionally starts the monitor without capturing Data ONTAP-v console output activity to the console log.

`[--no-watchdog]`

Optionally starts the monitor without enabling the watchdog capability.

`[--watchdog-no-coredump]`

Optionally starts the watchdog, but disables the creation of coredump files. This option cannot be use with the `--no-watchdog` option.

`vm_name`

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- PermissionsErr - Cannot write to lock file
- VmMonitorRunning - The monitor is already running
- SerialPortsBusy - Console logging is enabled, but there are no local serial ports available to monitor the Data ONTAP-v console

Examples: Starting the monitor

The following command starts the Data ONTAP-v monitor with all features enabled:

```
> vm monitor start dotv1
vm monitor for dotv1 is running with no options
```

The following command starts the Data ONTAP-v monitor, but does not enable automatic backups:

```
> vm monitor start --no-backup dotv1
vm monitor for dotv1 is running with options --no-backup
```

vm monitor stop

The `vm monitor stop` command enables you to stop the Data ONTAP-v virtual machine monitor.

Syntax

```
vm monitor stop [--force] vm_name
```

Description

The `vm monitor stop` command stops the virtual machine monitor. When the monitor is stopped, the functionality for console logging, automatic backup, and reporting Data ONTAP-v health information is stopped.

The monitor will also be stopped when the Data ONTAP-v virtual machine is deleted (`vm destroy`).

Parameters

`[--force]`

Optionally enables you to force the monitor to stop. This option should be used only if the monitor does not stop when using the `stop` command.

`vm_name`

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmMonitorNotRunning - The monitor is NOT running
- VmMonitorNotStopping - The monitor is NOT stopping

Example: Stopping the monitor

The following command stops the Data ONTAP-v monitor:

```
> vm monitor stop dotv1

VM monitor for dotv1 exiting: TERM
```

vm network connect

The `vm network connect` command connects a specific Data ONTAP-v network adapter to a network that is available on the host server.

Syntax

```
vm network connect vm_name adapter_name network_name
```

Description

When you initially deploy Data ONTAP-v, all six virtual machine network adapters are connected to the network you specified in the `vm create` command. The `vm network connect` command enables you to connect a network adapter to a different network. This is useful if you want to serve data over multiple networks, or manage your Data ONTAP-v system from multiple networks.

Note: The Data ONTAP-v virtual machine must be powered off to run this command.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine.

adapter_name

The name of the Data ONTAP-v network adapter. Use the `vm network show` command to obtain a list of the available adapters. You must place quotes around parameters that contain spaces.

network_name

The name of the network. Use the `network show` command to obtain a list of the networks that are available on the host server through the virtual switch.

Returned errors

- InternalErr
- CmdFailed
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmNetConnectErr - Cannot reconfigure the virtual machine and connect the adapter to the specified network

Example: Connecting virtual machine networks

The following example connects Network adapter 3 to network "Network2" for Data ONTAP-v "dotv1":

```
> vm network connect dotv1 "Network adapter 3" Network2

Network adapter 3 connected to Network2
```

vm network show

The `vm network show` command lists the network devices available to the Data ONTAP-v virtual machine.

Syntax

```
vm network show vm_name
```

Description

The `vm network show` command shows the network adapters on the Data ONTAP-v virtual machine and the networks to which they are connected.

The following network information is displayed:

- Adapter name
- MAC address
- Network name

If needed, you can use the `vm network connect` command to change the network to which one of the network adaptors is connected.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- CmdFailed
- UsageErr
- InvalidArg

Example: Showing virtual machine networks

The following example shows the network information for Data ONTAP-v "dotv1":

```
> vm network show dotv1

Adapter Name          MAC Address           Network Name
Network adapter 1     00:50:56:9c:28:2d     VM Network
Network adapter 2     00:50:56:9c:7e:77     VM Network
Network adapter 3     00:50:56:9c:3b:a2     VM Network
Network adapter 4     00:50:56:9c:7e:65     VM Network
Network adapter 5     00:50:56:9c:3b:11     VM Network
Network adapter 6     00:50:56:9c:34:f5     VM Network
```

vm prop set / unset

The `vm prop set` and `vm prop unset` commands enable you to define additional Data ONTAP properties that will be passed to Data ONTAP at initial startup. You can also change some of the

Data ONTAP-v and Data ONTAP properties that you defined when you initially issued the `vm create` command.

Syntax

```
vm prop set                 vm_name                 propertyN=valueN ...
```

```
vm prop unset                 vm_name                 propertyN ...
```

Description

The `vm prop set` command enables you to define or change properties that will be passed to Data ONTAP at initial startup. The `vm prop unset` command enables you to clear a specific property value (or values) that will be passed to Data ONTAP at initial startup. You can set or unset many properties in a single command by listing multiple properties separated by spaces.

Note that you must place quotes around properties that include spaces.

These properties must be set (or changed) before you power on (start) the Data ONTAP-v virtual machine for the first time. Once Data ONTAP-v has been started and has reached the "ready" state (see the `vm state show` command), these commands can no longer be used. Changes to these properties must be made directly using the Data ONTAP interface or OnCommand System Manager.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

propertyN=valueN

The Data ONTAP property and value to be set.

propertyN

The Data ONTAP property to be cleared.

The properties from the `vm create` command that can be changed are listed in the table below.

Property name	Type	Description
`license=`*`license`*	string	The unique 24-character Data ONTAP-v platform license.
`hostname=`*`hostname`*	string	The host name by which the storage system is known on the network (corresponds to the primary IP address).
`ipaddr=`*`ipaddr`*	ip	The primary Data ONTAP-v interface (e0a) IP address.
`netmask=`*`netmask`*	ip	The primary Data ONTAP-v interface (e0a) netmask.
`gateway=`*`gateway`*	ip	The gateway that is used for network connectivity.

Property name	Type	Description
`password=`*`password`*	string	The administrative password for the Data ONTAP root account.
`vsphere_username=`*`user`*	string	The username for read-only access to the virtual machine host (vSphere server).
`vsphere_password=`*`password`*	string	The password for read-only access to the virtual machine host (vSphere server).

The additional Data ONTAP properties that can be set/unset are listed in the table below.

Optional property name	Type	Description
`checksum_type=`*`type`*	string	The checksum *type* that will be used when creating data disks using `vm disk create`: • "zoned" is the default setting, and it stands for Advanced Zone Checksum Scheme. • "block" stands for Block Checksum Scheme. See the *Data ONTAP Storage Management Guide for 7-Mode* for more information about checksums.
`dns_domainname=`*`domainname`*	string	The name of the Domain Name System (DNS) domain.
`dns_ipaddr=`*`ipaddr`*	ip	The IP addresses of the DNS servers you want to use, separated by commas. You can identify a maximum of three servers.
`feature_licenses=`*`license[, license]`*	string	A comma-delimited list of the Data ONTAP feature licenses you want to use, in addition to the default licenses that are installed automatically. The default licenses are: CIFS, NFS, iSCSI, FlexClone, SnapRestore, and SnapVault. **Note:** When installing a Data ONTAP Edge-T system you must add the SnapMirror license manually using this property.
`iface1_ipaddr=`*`ipaddr`*	ip	The IP address of the first interface (e0a).
`iface1_netmask=`*`netmask`*	ip	The netmask of the first interface (e0a).
`iface2_ipaddr=`*`ipaddr`*	ip	The IP address of the second interface (e0b).
`iface2_netmask=`*`netmask`*	ip	The netmask of the second interface (e0b).
`iface3_ipaddr=`*`ipaddr`*	ip	The IP address of the third interface (e0c).

Optional property name	Type	Description
`iface3_netmask=`*`netmask`*	ip	The netmask of the third interface (e0c).
`iface4_ipaddr=`*`ipaddr`*	ip	The IP address of the fourth interface (e0d).
`iface4_netmask=`*`netmask`*	ip	The netmask of the fourth interface (e0d).
`iface5_ipaddr=`*`ipaddr`*	ip	The IP address of the fifth interface (e0e).
`iface5_netmask=`*`netmask`*	ip	The netmask of the fifth interface (e0e).
`iface6_ipaddr=`*`ipaddr`*	ip	The IP address of the sixth interface (e0f).
`iface6_netmask=`*`netmask`*	ip	The netmask of the sixth interface (e0f).
`nis_domainname=`*`domainname`*	string	The name of your Network Information Service (NIS) domain. The storage system can use an NIS domain to authenticate users and client computers.
`nis_ipaddr=`*`ipaddr`*	ip	The IP addresses of your preferred NIS servers, separated by commas. You can identify a maximum of three addresses. Additionally, you can enter the wildcard "*" to perform a broadcast across the default subnet to use any available NIS servers.
`nodemgmt_interface=`*`interface_number`*	number	The interface that will be used to manage the VM. By default interface 1 (e0a) is used, but you can select a number from 2 through 6 if you want to manage the VM through a different interface.
`tmz=`*`timezone`*	string	The time zone in which the storage system resides. GMT is the default setting if you do not enter a value. See the "Time zones" appendix in the *Data ONTAP Software Setup Guide for 7-Mode* for valid values.

Note: The DNS, NIS, and interface properties must be set in pairs. For example, if you set a DNS domain name, you must set at least one DNS server IP address.

Note: When you enter an NIS domain name (*`nis_domainname`*), dvadmin automatically adds the wildcard character "*" as the NIS IP address (*`nis_ipaddr`*). You may enter individual IP addresses to override this value if you prefer.

Returned errors

- CmdFailed
- UsageErr
- InvalidArg

Examples: Changing Data ONTAP-v properties

The following command changes the platform license value that was entered incorrectly in the `vm create` command:

```
> vm prop set dotv1 license=XXXX-YYYY-ZZZZ-AAAA-BBBB

Set license = XXXX-YYYY-ZZZZ-AAAA-BBBB (XXXX-YYYY-ZZZZ-AAAA-CCCC)
```

dvadmin shows the new value that is being set and the old value (in parentheses) that is being replaced.

The following command unsets the DNS domain name and the DNS IP address settings:

```
> vm prop unset dotv1 dns_domainname dns_ipaddr

Unset dns_domainname (mydomain.mycompany.com)
Unset dns_ipaddr (123.123.123.123,123.123.123.124)
```

The following command adds an additional Data ONTAP feature license to the Data ONTAP-v virtual machine "dotv1":

```
> vm prop set dotv1 feature_licenses=XXYYZZFTSJBCOOAAAAAAAAA

Set feature licenses = XXYYZZFTSJBCOOAAAAAAAAA
```

vm prop show

The `vm prop show` command displays the Data ONTAP configuration properties for the specified Data ONTAP-v.

Syntax

```
vm prop show vm_name
```

Description

The `vm prop show` command displays the value of any Data ONTAP properties you set with the `vm create` or `vm prop set` commands.

Note that once the Data ONTAP-v virtual machine has been started and has reached the "ready" state (see the `vm state show` command), this command shows the values at the time Data ONTAP-v was started. If any properties are changed later using the Data ONTAP interface, those changes are not reflected in the `vm prop show` command output.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- CmdFailed

Example: Showing Data ONTAP properties

The following example shows the value of any Data ONTAP properties set for Data ONTAP-v "dotv1".

```
> vm prop show dotv1

checksum_type = zoned
dns_domainname = dns_server12
dns_ipaddr = 123.123.123.123,123.123.123.124
gateway = 10.10.12.12
hostname = system2
ipaddr = 10.10.12.23
license = XXXX-YYYY-ZZZZ-AAAA-BBBB
netmask = 255.255.248.0
password = *********
raidtype = RAID0
tmz = EST
vsphere_hostname = dsmnn0.company.com
vsphere_password = *********
vsphere_username = root
```

vm restart

The `vm restart` command restarts the Data ONTAP-v virtual machine.

Syntax

```
vm restart                [--force]                vm_name
```

Description

The `vm restart` command stops the Data ONTAP-v virtual machine and then starts it again. This command is like issuing a `vm stop` command followed by a `vm start` command.

There are two ways to restart the Data ONTAP-v virtual machine using the `vm restart` command:

- The `vm restart` command cleanly stops Data ONTAP before stopping the virtual machine. This is called a "soft" or "graceful" restart because Data ONTAP performs an orderly shutdown that flushes file system updates to disk and clears the NVRAM before the virtual machine stops. Note that the *VM tools* must be running on the virtual machine in order to perform a graceful restart.
- The `vm restart --force` command forcibly stops Data ONTAP and the virtual machine. This action performs the virtual equivalent of turning off power to a physical machine or pressing a physical reset button. In this case, Data ONTAP is not shut down in an orderly fashion before the virtual machine stops.

Use the `restart` command without the `--force` option whenever possible because Data ONTAP should be shut down in an orderly fashion. See the *Data ONTAP System Administration Guide for 7-Mode* for more information about stopping, or halting, the storage system and Data ONTAP.

Note: You can also use the `reboot` command from the system console to restart just Data ONTAP.

Parameters

`[--force]`

Optionally enables you to force the virtual machine to restart. This option should be used only if Data ONTAP-v does not restart when using the `restart` command.

`vm_name`

The name of the Data ONTAP-v virtual machine that you want to restart.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmPowerErr - Failed to restart the virtual machine
- VmConfigErr - The virtual machine has been misconfigured (inadequate resources or missing/incorrect properties)

Example: Restarting the Data ONTAP-v virtual machine

The following command gracefully stops the "dotv1" Data ONTAP-v and then starts it:

```
> vm restart dotv1

restart VM dotv1
```

vm savecore

The `vm savecore` command extracts the contents of a core dump that exists on a Data ONTAP-v storage system (that had a panic) and writes it to a core file.

Syntax

```
vm savecore                vm_name [core_file]
```

Description

Core dumps are generated automatically when Data ONTAP panics. A core dump file contains the contents of memory and NVRAM. This information can be used by support personnel to help determine the cause of the problem.

In some cases, the core dump is not saved to a core file. In such cases, you can use the `vm savecore` command to save the core dump to a core dump file. An error message will be returned if there are no core files to be saved.

Note: The Data ONTAP-v virtual machine has to be powered "off" before the core dump contents can be extracted and downloaded from the virtual disk.

See the *Data ONTAP System Administration Guide for 7-Mode* for more information about core files.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

[*core_file*]

Optionally, you can specify a location and name of the core file. By default, the core file will be saved to the local directory and have the format `core.<sysid>.<date>.<time>.nz`, for example, `core.2194434984.2013-02-04.14_10_32.nz`.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- CmdFailed
- VMSavecoreErr - Cannot download core dump contents or save core file

Example: Saving a Data ONTAP-v core file

The following command saves the contents of a core dump from a virtual disk to a core file using the default name and location:

```
> vm savecore dotv1

downloading coredump contents (389 MB)
generating the savecore file
.............................................................
.............................................................
.............................................................
saved core file: core.2194434984.2013-02-04.14_10_32.nz
```

The following command saves the contents of a core dump to the core file `526632.nz` in `/root`:

```
> vm savecore dotv1 /root/526632.nz

downloading coredump contents (325 MB)
generating the savecore file
.............................................................
.............................................................
.............................................................
saved core file: /root/526632.nz
```

vm serial show

The `vm serial show` command lists the available Data ONTAP-v virtual machine serial ports.

Syntax

```
vm serial show vm_name
```

Description

The `vm serial show` command shows the available serial ports on the Data ONTAP-v virtual machine in order to connect to Data ONTAP-v from an application.

When you install the Data ONTAP-v using the `vm create` command, two serial ports are created automatically for console and debugger access. Typically, you do not need to perform additional management of the Data ONTAP-v serial ports.

The following information is displayed for each serial port:

- Serial device name

- Port - the number of the port. The first port created is port 0, the next is port 1, and so on
- Conn - whether the serial port is currently connected (Y or N)
- Status - whether the port is healthy or not
- Details - the file name of the named pipe backing the device

Parameters

vm_name

The name of the Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InternalErr
- CmdFailed
- InvalidArg

Example: Showing serial devices

The following command shows the serial ports that are available on Data ONTAP-v "dotv1":

```
> vm serial show dotv1

Serial Name      Port  Conn  Status   Details
Serial port 1    0     Y     ok       Remote tcp://:7200
Serial port 2    1     Y     ok       Pipe /vm_serial_1
```

vm setup

The `vm setup` command starts the VM setup wizard. It provides an easy way to create and start a Data ONTAP Edge storage system.

Syntax

```
vm setup
```

Description

The `vm setup` command prompts you for all the configuration information that will define your Data ONTAP Edge storage system. The setup wizard replaces many individual dvadmin commands that you would otherwise need to enter in order to create the virtual machine.

See the *Data ONTAP Edge Installation and Administration Guide* for details.

Parameters

None

Returned errors

None

Example: Starting the setup wizard

The following example shows the start of the setup wizard:

```
> vm setup

Welcome to the VM setup wizard!
This wizard will take you step-by-step through the process of
creating a Data ONTAP virtual machine.
Use ^C at any prompt to exit the wizard.
```

vm show

The `vm show` command displays operating information about the Data ONTAP-v virtual machine.

Syntax

```
vm show [vm_name]
```

Description

The `vm show` command shows detailed (verbose) information about the Data ONTAP-v virtual machine. This information is useful in order to verify the Data ONTAP-v virtual machine settings and operating state.

This command lists all the virtual machines on the host server if you do not specify a Data ONTAP-v virtual machine name. If you do specify a virtual machine name, the command shows detailed information about the specific Data ONTAP-v virtual machine. The detailed information includes the list of virtual disks, network adapters, and serial devices. Detailed information also shows resource consumption. Some of this information is described in the `vm disk show`, `vm network show`, and `vm serial show` commands. The information that is unique to this command includes:

- Hostname/IP Address - The hostname and IP address obtained from Data ONTAP. These entries are obtained dynamically and are only reported when the virtual machine is powered on and responsive (when VM tools can be contacted).
- Serial Number and System ID - The serial number and system ID of the storage system.
- VM Version - The version of the Data ONTAP-v virtual machine image.

- Data ONTAP Version - The version of Data ONTAP running on the virtual machine.
- Power - Indicates whether the virtual machine is powered on, powered off, or suspended.
- Heartbeat - Indicates one of four possible VMware heartbeat states:
  - gray - VMware Tools are not installed or not running.
  - red - No heartbeat. Data ONTAP may have stopped responding.
  - yellow - Intermittent heartbeat. This may be caused by heavy Data ONTAP usage.
  - green - Data ONTAP is operating normally.
- Cfgstate - The Data ONTAP-v virtual machine configuration state:
  - new - The virtual machine was successfully created, but has not yet been powered on.
  - init - The virtual machine is in the initialization state and undergoing auto-setup.
  - failed - Virtual machine auto-setup failed. See the `vm state show` command for the failure reason.
  - ready - Virtual machine auto-setup completed and the Data ONTAP-v is ready for use.
- CPU and Memory Reservation - The host server resources that are currently reserved for use by this virtual machine.

Parameters

[*vm_name*]

Optionally, the name of a specific Data ONTAP-v virtual machine whose status information you want to show.

Returned errors

- InvalidArg
- InternalErr
- CmdFailed

Examples: Showing Data ONTAP-v information

The following example shows brief information for all the virtual machines on the host:

```
> vm show

VM Name     Power  CfgState  Heartbeat  Hostname     IP Address
mgmt_vm     on     -         green      system1      10.10.10.2
dotv1       on     ready     green      system2      10.10.10.1
```

The following example displays detailed information for Data ONTAP-v "dotv1".

```
> vm show dotv1

VM Name     Power  CfgState  Heartbeat  Hostname     IP Address
dotv1       on     ready     green      system2      10.10.10.1

VM Version  Data ONTAP Version    Serial Number  System ID
1.x         8.x.x                 2006000000015  2147483903
```

```
Disk Name     Ctrl:Unit  Size (MB)   UUID            Backing
Hard disk 1   ide0:0      1057       -               pool_1
Hard disk 2   ide0:1      1542       -               pool_1
Hard disk 3   ide1:0      5121       -               pool_1
Hard disk 4   scsi0:0     335542     <uuid-string>   pool_2

Adapter Name          MAC Address           Network Name
Network adapter 1     00:50:56:9c:28:2d     VM Network
Network adapter 2     00:50:56:9c:7e:77     VM Network
Network adapter 3     00:50:56:9c:3b:a2     VM Network
Network adapter 4     00:50:56:9c:34:f5     VM Network
Network adapter 5     00:50:56:9c:3b:22     VM Network
Network adapter 6     00:50:56:9c:7f:54     VM Network

Serial Name      Port  Conn  Status        Details
Serial port 1    0     Y     ok            Remote tcp://:7200
Serial port 2    1     Y     ok            Pipe dotv1_serial_1

Resource              Reservation
CPU                   5332 MHz
Memory                4096 MB
```

vm start

The `vm start` command starts the Data ONTAP-v virtual machine.

Syntax

```
vm start vm_name
```

Description

The `vm start` command starts the Data ONTAP-v virtual machine and the Data ONTAP operating system. Once the virtual machine is running, it will continue to run even when you exit your dvadmin session.

This operation performs some system configuration checking before starting Data ONTAP-v, for example, making sure the system has the correct number of CPUs and amount of RAM. The start operation will fail if the configuration does not meet the minimum requirements.

Once Data ONTAP-v is running, you can connect to the Data ONTAP system console (or System Manager) to further configure your storage settings. See the Data ONTAP 7-Mode Software documentation for more information.

Parameters

vm_name

The name of the Data ONTAP-v virtual machine that you want to start.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- VmPowerErr - Failed to start the virtual machine because the host server does not have adequate resources to power up.
- VmConfigErr - The virtual machine has been misconfigured (inadequate resources or missing/incorrect properties)

Example: Starting the Data ONTAP-v virtual machine

The following command starts virtual machine "dotv1":

```
> vm start dotv1

start VM dotv1
```

vm state show

The `vm state show` command displays the current Data ONTAP-v configuration state.

Syntax

```
vm state show vm_name
```

Description

The `vm state show` command shows the current configuration state of the Data ONTAP-v virtual machine. The state information also appears in the `vm show` command, but more detailed information about the "failed" state appears in this command.

The following state values, in order, can be displayed:

- *new* - The virtual machine was created successfully, but it has not been powered on or undergone auto-setup.
- *init* - The virtual machine is in the 'initialization' state and undergoing auto-setup, where serial ports and data disks are being created.
- *failed* - The virtual machine auto-setup failed. The reason for the failure is displayed below the state.
- *ready* - The virtual machine auto-setup completed, and Data ONTAP-v is ready for use.

Typically, when you start the Data ONTAP-v virtual machine, the state transitions from "new" to "init" to "ready". If Data ONTAP-v goes into the "failed" state instead of "ready", run this command

to view the reason for the failure. Once you fix the condition that caused the error, restart the Data ONTAP-v virtual machine to go through the auto-setup process again.

Parameters

vm_name

The name of a specific Data ONTAP-v virtual machine to which you want to connect.

Returned errors

- InvalidArg
- InternalErr
- CmdFailed

Examples: Showing the configuration state

The following example shows that the Data ONTAP-v is ready:

```
> vm state show dotv1

State: ready
```

The following example shows that the Data ONTAP-v failed auto-setup because no disks exist:

```
> vm state show dotv1

State: failed
Error: This system has no disks, and thus no file system
 can be created on it
```

vm stop

The `vm stop` command stops the Data ONTAP-v virtual machine.

Syntax

```
vm stop                [--force]                vm_name
```

Description

The `vm stop` command stops the Data ONTAP operating system and then stops the virtual machine. You need to stop, or shut down, the Data ONTAP-v virtual machine to make certain Data ONTAP-v

configuration changes. This operation could take a minute or so to completely shut down the Data ONTAP-v.

There are two ways to shut down the Data ONTAP-v virtual machine using the `vm stop` command:

- The `vm stop` command cleanly shuts down Data ONTAP-v. This is called a "soft" or "graceful" stop because Data ONTAP performs an orderly shutdown that flushes file system updates to disk and clears the NVRAM before the virtual machine stops. Note that the *VM tools* must be running on the Data ONTAP-v virtual machine to perform a graceful shutdown.
- The `vm stop --force` command forcibly shuts down Data ONTAP-v. This action performs the virtual equivalent of turning off power to a physical machine or pressing a physical reset button. In this case, Data ONTAP is not shut down in an orderly fashion before the virtual machine stops.

It is best to use the `stop` command without the `--force` option whenever possible because Data ONTAP should be shut down in an orderly fashion. See the *Data ONTAP System Administration Guide for 7-Mode* for the implications of stopping, or halting, the storage system and Data ONTAP.

Note: You can also use the `halt` command from the system console to shut down just Data ONTAP.

Parameters

`[--force]`

Optionally enables you to force the virtual machine to stop. This option should be used only if Data ONTAP-v does not stop when using the `stop` command.

`vm_name`

The name of the Data ONTAP-v virtual machine that you want to stop.

Returned errors

- InternalErr
- UsageErr
- InvalidArg
- TaskInProgressErr
- VmPowerErr - Failed to stop the virtual machine

Examples: Stopping the Data ONTAP-v virtual machine

The following command gracefully stops virtual machine "dotv1":

```
> vm stop dotv1

stop VM dotv1
```

Note: If you receive a `TaskInProgressErr` error, wait a short time and retry the command.

The following command forcibly stops virtual machine "dotv1" if it would not stop when using the `vm stop` command listed above:

```
> vm stop --force dotv1

forcibly stop VM dotv1
```

vm uuid show

The `vm uuid show` command displays the UUID of the specified Data ONTAP-v virtual machine.

Syntax

```
vm uuid show vm_name
```

Description

The `vm uuid show` command displays the universally unique identifier (UUID) of the Data ONTAP-v virtual machine.

Parameters

vm_name

The name of a specific Data ONTAP-v virtual machine.

Returned errors

- InvalidArg
- InternalErr
- UsageErr
- CmdFailed

Example: Showing the Data ONTAP-v virtual machine UUID

The following example shows the UUID for Data ONTAP-v "dotv1":

```
> vm uuid show dotv1

UUID            564df00b-dbde-b700-8cd3-e8d41c746f60
```

Data ONTAP-v administration tool error return codes

When you issue a dvadmin command, an error message will be returned if there is a problem executing the command.

When running in interactive mode (entering commands directly on the dvadmin command line), it will display the error code and error message if the command failed.

When running in non-interactive mode (launched with connection options *and* a command), dvadmin will display the error code and message, and return the error code as the command's exit status.

In the case, where multiple commands are passed to dvadmin using the `source` command, the return value corresponds to the error returned by the command that failed and caused dvadmin to abort processing the source file. In the case where the `--keep-going` option was used with the `source` command, a *CmdFailed* error code will be returned if any of the commands in the file encountered a failure. See the `source` command for more information.

Error code list

The error codes that can be returned are listed in the following table along with the error names and more detailed descriptions of the failures indicated by those error codes.

Note: These messages may change in future releases of dvadmin and should not be parsed to determine the cause of failure. Only the command error number can be used as an interface for determining the cause of the error.

Error Name	Error Number	Description
Generic Errors		
InternalErr	11	Internal dvadmin error
UsageErr	12	Command usage error
InvalidArg	13	Invalid argument passed to the command. This message also prints a more detailed error message in the format *<argname> invalid - <reason>*.
CmdNotFound	14	Command was not found
CmdFailed	15	Command failed
PermissionsErr	16	Inadequate permissions, or cannot write to a locked file

TaskInProgressErr	17	Cannot complete the operation because another task is in progress. This message also displays more details about the operation that is in progress. If you receive this error, wait a short time and retry the command.
HostNotFound	30	vSphere host server with that name was not found
ConnectionRefused	31	Server rejected connection attempt - not a vSphere host
LoginFailed	32	Failed to login to the vSphere server - incorrect user name or password
HostConfigErr	33	A host server configuration issue prevented dvadmin from completing the operation. Possible causes of this error include *sshd* not running on the host, or a firewall setting on the host that is blocking the *ssh* connection.
ConnectionTimeout	34	Could not connect to the host after attempting for 60 seconds, so the connection has been timed out
NoHost	35	The dvadmin session is not currently connected to a vSphere host. Use the `host <hostname>` command to connect to a host.
Management Virtual Machine Errors		
SerialPortsBusy	41	All serial ports in the management virtual machine are in use
Pool Errors		
PoolCreateErr	51	Error encountered when attempting to create the pool
PoolDestroyErr	52	Error encountered when attempting to destroy the pool
PoolBusy	53	Pool is busy or in use (has virtual disks)
Virtual Machine Errors		
VmCreateOvfErr	81	OVF package error encountered when attempting to create the virtual machine
VmCreateIOErr	82	I/O error encountered when attempting to create the virtual machine
VmDestroyErr	83	Error encountered when attempting to destroy the virtual machine
VmSerialCreateErr	84	Error encountered when attempting to create the virtual machine serial port

VmSerialConnectErr	85	Unable to connect to the serial port for console connection. Possible cause of this error includes a firewall setting on the ESX host that is blocking the connection.
VmSerialDestroyErr	86	Error encountered when attempting to destroy the virtual machine serial port
VmDiskCreateErr	87	Error encountered when attempting to create the virtual machine disk
VmDiskDestroyErr	88	Error encountered when attempting to destroy the virtual machine disk
VmDiskReassignErr	89	Error encountered when attempting to reassign a disk to another virtual machine
VmDiskNoPorts	90	No SCSI ports are available for adding the virtual disk
VmNetConnectErr	91	Error connecting network adapter to the specified network
Virtual Machine Operational Errors		
VmConfigErr	101	Virtual machine has been misconfigured
VmPowerErr	102	Virtual machine power change error - cannot stop, start, or restart the virtual machine
VmBackupErr	103	Virtual machine backup failure
VmRestoreErr	104	Virtual machine restore failure
VmConsoleBusy	105	Virtual machine console is already in use by another connection
VmLogErr	106	Cannot read the virtual machine log (vmware.log) file from the server, or cannot save the file locally
VmCoredumpErr	107	Cannot force the virtual machine to dump core, or another core dump is currently in progress
VmConsoleNotStopping	108	Virtual machine console connection was not disconnected
Virtual Machine Monitor Errors		
VmMonitorRunning	111	Virtual machine monitor is already running
VmMonitorNotRunning	112	Virtual machine monitor is not running
VmMonitorNotStopping	113	Virtual machine monitor is not stopping
AutoSupport (ASUP) Errors		
AsupNotConfigured	121	No ASUP values have been configured

AsupAuthErr	122	Authorization error when attempting to send an ASUP
AsupConfigErr	123	Configured ASUP values are incorrect
AsupSendErr	124	Error when attempting to send an ASUP

Error code examples

In addition to the error code and description, you will receive more detailed information about the error when it is available.

For example, if you enter the name of the Data ONTAP-v virtual machine incorrectly, you receive the standard "InvalidArg" error plus additional information about which argument is invalid, as shown below:

```
> vm disk show dotv

[13] InvalidArg: <vm_name> invalid - no VM named 'dotv'
usage: vm disk show <vm_name>
Display virtual machine disks
>
```

If you attempt to destroy the Data ONTAP-v virtual machine while it is powered on, you receive the following error information:

```
> vm destroy dotv1

[83] VmDestroyErr: cannot destroy vm 'dotv1', it is not powered off.
>
```

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