

# Acronis

## Acronis Software-Defined Infrastructure 2.5

### Command Line Reference

January 15, 2019

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## CHAPTER 1

# Introduction

This guide describes the syntax and parameters of the `vinfra` command-line tool that can be used to manage Acronis Software-Defined Infrastructure from console and automate such management tasks.

While the following chapters provide a reference of specific operations that you can perform with `vinfra`, you can also run `vinfra help` to get a list of all supported commands and their descriptions. For help on a specific command, either run `vinfra help <command>` or `vinfra <command> --help`.

## 1.1 Providing Credentials

The `vinfra` CLI tool requires the following information to be used:

- IP address or hostname of the management node (set to `backend-api.svc.vstoragedomain` by default).
- Username (`admin` by default).
- Password (created during installation of Acronis Software-Defined Infrastructure).

This information can be supplied via the `--vinfra-portal`, `--vinfra-username`, and `--vinfra-password` command-line parameters with each command. Alternatively, you can supply it by setting the environment variables `VINFRA_PORTAL`, `VINFRA_USERNAME`, and `VINFRA_PASSWORD` (e.g., in your `~/.bash_profile`). In this case, you will be able to run the CLI tool without the aforementioned command-line parameters.

As you typically run `vinfra` from the management node as `admin`, the only variable you usually need to set is the password. For example:

```
# export VINFRA_PASSWORD=12345
```

If you installed `vinfra` on a remote machine and/or run it as a different user, you will need to set `VINFRA_PORTAL` and/or `VINFRA_USERNAME` on that machine in addition to `VINFRA_PASSWORD`.

## 1.2 Managing Tasks

The `vinfra` CLI tool executes some commands immediately, while for other commands (that may take some time to complete) it creates system tasks that are queued. Examples of actions performed via tasks are creating the storage or compute cluster and adding nodes to it.

To keep track of tasks being performed by `vinfra`, use the `vinfra task list` and `vinfra task show` commands. For example:

```
# vinfra task list
+-----+-----+-----+
| task_id          | state | name                                     |
+-----+-----+-----+
| 8fc27e7a-ba73-471d-9134-e351e1137cf4 | success | backend.tasks.cluster.CreateNewCluster |
| e61377db-9df4-4282-99aa-6a4ae73a7f96 | success | backend.tasks.disks.ApplyDiskRoleTask  |
| a005b748-cb85-40f8-a09d-291a8599bb9c | success | backend.tasks.node.AddNodeInClusterTask |
+-----+-----+-----+
# vinfra task show 8fc27e7a-ba73-471d-9134-e351e1137cf4
+-----+-----+
| Field | Value                                     |
+-----+-----+
| args   | - stor1                                  |
|        | - 7ffa9540-5a20-41d1-b203-e3f349d62565 |
|        | - null                                    |
|        | - null                                    |
| kwargs | {}                                        |
| name   | backend.tasks.cluster.CreateNewCluster |
| result | cluster_id: 1                            |
| state  | success                                  |
| task_id | 8fc27e7a-ba73-471d-9134-e351e1137cf4 |
+-----+-----+
```



## CHAPTER 2

# Managing Storage Cluster

## 2.1 Managing Tokens

### 2.1.1 Showing Token Details

#### 2.1.1.1 Syntax

```
usage: vinfra node token show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
```

Display the backend token.

...

#### 2.1.1.2 Sample Output

This command shows the details of the current token.

```
# vinfra node token show
+-----+-----+
| Field | Value |
+-----+-----+
| host  | 10.37.130.101 |
| token | dc56d4d2 |
| ttl   | 86398 |
+-----+-----+
```

## 2.1.2 Creating a New Token

### 2.1.2.1 Syntax

```
usage: vinfra node token create [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--ttl <ttl>]
```

Create the backend token.

optional arguments:

```
-h, --help            show this help message and exit
--ttl <ttl>          Token TTL, in seconds
```

...

### 2.1.2.2 Sample Output

This command creates a new token with the time to live (TTL) of 86400 seconds.

```
# vinfra node token create --ttl 86400
```

```
+-----+-----+
| Field | Value      |
+-----+-----+
| host  | 10.37.130.101 |
| token | dc56d4d2     |
| ttl   | 86398       |
+-----+-----+
```

## 2.1.3 Validating the Token

### 2.1.3.1 Syntax

```
usage: vinfra node token validate [-h] [-f {json,table,value,yaml}]
                                   [-c COLUMN]
                                   token
```

Validate the backend token.

positional arguments:

```
token                Token value
```

...

### 2.1.3.2 Sample Output

This command validates the token dc56d4d2.

```
# vinfra node token validate dc56d4d2
+-----+-----+
| Field | Value |
+-----+-----+
| status | valid |
+-----+-----+
```

## 2.2 Managing Traffic Types and Networks

### 2.2.1 Creating Traffic Types

#### 2.2.1.1 Syntax

```
usage: vinfra cluster traffic-type create [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN] --port <port>
                                           <traffic-type-name>
```

Create a new traffic type.

positional arguments:

<traffic-type-name> Traffic type name

optional arguments:

-h, --help show this help message and exit

--port <port> Traffic type port

...

#### 2.2.1.2 Sample Output

This command creates a custom traffic type MyTrafficType on port 6900.

```
# vinfra cluster traffic-type create "MyTrafficType" --port 6900
+-----+-----+
| Field      | Value          |
+-----+-----+
| exclusive  | False          |
| name       | MyTrafficType  |
| port       | 6900           |
```

```
| type      | custom      |
+-----+-----+
```

## 2.2.2 Listing Traffic Types

### 2.2.2.1 Syntax

```
usage: vinfra cluster traffic-type list [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--full]
```

List available traffic types.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 2.2.2.2 Sample Output

This command lists all traffic types in Acronis Software-Defined Infrastructure.

```
# vinfra cluster traffic-type list
+-----+-----+-----+-----+
| name          | type      | exclusive | port |
+-----+-----+-----+-----+
| Storage       | predefined | True      |      |
| Internal management | predefined | True      |      |
| OSTOR private | predefined | True      |      |
| S3 public     | predefined | False     |      |
| iSCSI         | predefined | False     |      |
| NFS           | predefined | False     |      |
| ABGW private  | predefined | True      |      |
| ABGW public   | predefined | False     |      |
| Admin panel   | predefined | False     |      |
| SSH           | predefined | False     |      |
| VM public     | predefined | False     |      |
| VM private    | predefined | True      |      |
| Compute API   | predefined | True      |      |
| MyTrafficType | custom    | False     | 6900 |
+-----+-----+-----+-----+
```

## 2.2.3 Showing Traffic Type Details

### 2.2.3.1 Syntax

```
usage: vinfra cluster traffic-type show [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN]
                                         <traffic-type>
```

Show details of a traffic type.

```
positional arguments:
  <traffic-type>      Traffic type name
  ...
```

### 2.2.3.2 Sample Output

This command shows the details of the traffic type Storage.

```
# vinfra cluster traffic-type show Storage
+-----+-----+
| Field   | Value   |
+-----+-----+
| exclusive | True    |
| name     | Storage |
| port    |         |
| type    | predefined |
+-----+-----+
```

## 2.2.4 Changing Traffic Type Parameters

### 2.2.4.1 Syntax

```
usage: vinfra cluster traffic-type set [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--name <name>]
                                         [--port <port>]
                                         <traffic-type>
```

Modify traffic type parameters.

```
positional arguments:
  <traffic-type>      Traffic type name
```

```
optional arguments:
  -h, --help          show this help message and exit
  --name <name>      A new name for the traffic type
```

```
--port <port>      A new port for the traffic type
...
```

### 2.2.4.2 Sample Output

This command renames the traffic type `MyTrafficType` to `MyOtherTrafficType` and changes its port to 6901.

```
# vinfra cluster traffic-type set "MyTrafficType" \
--name "MyOtherTrafficType" --port 6901
+-----+-----+
| Field   | Value           |
+-----+-----+
| exclusive | False           |
| name     | MyOtherTrafficType |
| port    | 6901            |
| type    | custom          |
+-----+-----+
```

## 2.2.5 Deleting Traffic Types

### 2.2.5.1 Syntax

```
usage: vinfra cluster traffic-type delete [-h] <traffic-type>

Delete a traffic type.

positional arguments:
  <traffic-type>  Traffic type name
...
```

### 2.2.5.2 Sample Output

This command deletes the custom traffic type `My other traffic type`.

```
# vinfra cluster traffic-type delete "My other traffic type"
Operation successful
```

## 2.2.6 Creating Networks

### 2.2.6.1 Syntax

```
usage: vinfra cluster network create [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN]
                                     [--traffic-types <traffic-types>]
                                     <network-name>

Create a new network.

positional arguments:
  <network-name>      Network name

optional arguments:
  -h, --help          show this help message and exit
  --traffic-types <traffic-types>
                     A comma-separated list of traffic type IDs or names
  ...
```

### 2.2.6.2 Sample Output

This command creates a custom network MyNet and assigns the traffic type SSH to it.

```
# vinfra cluster network create MyNet --traffic-types ssh
+-----+-----+
| Field | Value |
+-----+-----+
| id    | 03d5eeb3-1833-4626-885d-dd066635f5de |
| name  | MyNet |
| roles | - SSH |
| type  | Custom |
+-----+-----+
```

## 2.2.7 Listing Networks

### 2.2.7.1 Syntax

```
usage: vinfra cluster network list [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN] [--full]

List available networks.

optional arguments:
  -h, --help          show this help message and exit
```

```
output formatters:
...
```

### 2.2.7.2 Sample Output

This command lists all networks in Acronis Software-Defined Infrastructure.

```
# vinfra cluster network list
+-----+-----+-----+
| id                | name  | roles                |
+-----+-----+-----+
| 358bdc39-cd8b-4565-8ebf-e7c12cd1cf7 | Public | - ABGW public      |
|                                     |        | - iSCSI             |
|                                     |        | - NFS               |
|                                     |        | - S3 public         |
|                                     |        | - SSH               |
|                                     |        | - Admin Panel       |
| 6095a997-e5f1-493d-a750-41ddf277153b | Private | - ABGW private     |
|                                     |        | - Internal Management |
|                                     |        | - OSTOR private     |
|                                     |        | - SSH               |
|                                     |        | - Storage           |
+-----+-----+-----+
```

## 2.2.8 Showing Network Details

### 2.2.8.1 Syntax

```
usage: vinfra cluster network show [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN]
                                     <network>
```

Show details of a network.

```
positional arguments:
  <network>             Network ID or name
...
```



## 2.2.8.2 Sample Output

This command shows the details of the custom network MyNet.

```
# vinfra cluster network show MyNet
+-----+-----+
| Field | Value |
+-----+-----+
| id    | 03d5eeb3-1833-4626-885d-dd066635f5de |
| name  | MyNet |
| roles | - SSH |
| type  | Custom |
+-----+-----+
```

## 2.2.9 Changing Network Parameters

### 2.2.9.1 Syntax

```
usage: vinfra cluster network set [-h] [-f {json,table,value,yaml}]
                                   [-c COLUMN] [--wait] [--timeout <seconds>]
                                   [--name <network-name>]
                                   [--traffic-types <traffic-types> | --add-traffic-types <traffic-t
                                   <network>
```

Modify network parameters.

positional arguments:

<network> Network ID or name

optional arguments:

-h, --help show this help message and exit

--name <network-name>  
Network name

--traffic-types <traffic-types>  
A comma-separated list of traffic type names  
(overwrites network's current traffic types)

--add-traffic-types <traffic-types>  
A comma-separated list of traffic type names (adds the  
specified traffic types to the network)

--del-traffic-types <traffic-types>  
A comma-separated list of traffic type names (removes  
the specified traffic types from the network)

...

### 2.2.9.2 Sample Output

This command creates a task to rename the network MyNet to MyOtherNet and assign to it the traffic types iSCSI and NFS.

```
# vinfra cluster network set MyNet --name MyOtherNet --add-traffic-types iscsi,nfs
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | b29f6f66-37d7-47de-b02e-9f4087ad932b |
+-----+-----+
```

Task outcome:

```
# vinfra task show b29f6f66-37d7-47de-b02e-9f4087ad932b
+-----+-----+
| Field | Value |
+-----+-----+
| args | - 03d5eeb3-1833-4626-885d-dd066635f5de |
| kwargs | name: MyOtherNet |
| | roles: |
| | - ssh |
| | - iscsi |
| | - nfs |
| name | backend.presentation.network.roles.tasks.RolesSetChangeTask |
| result | id: 03d5eeb3-1833-4626-885d-dd066635f5de |
| | name: MyOtherNet |
| | roles: |
| | - iSCSI |
| | - NFS |
| | - SSH |
| | type: Custom |
| state | success |
| task_id | b29f6f66-37d7-47de-b02e-9f4087ad932b |
+-----+-----+
```

## 2.2.10 Changing Parameters of Multiple Networks

### 2.2.10.1 Syntax

```
usage: vinfra cluster network set-bulk [-h] [-f {json,table,value,yaml}]
    [-c COLUMN] [--wait]
    [--timeout <seconds>] --network
    <network>:<traffic-types>
```

Modify traffic types of multiple networks.

optional arguments:

```

-h, --help          show this help message and exit
--network <network>:<traffic-types>
                    Network configuration in the format:
                    network: network ID or name;
                    traffic-types: a comma-separated list of traffic type
                    names;
                    (this option can be used multiple times).
...

```

### 2.2.10.2 Sample Output

This command creates a task to change the traffic type set of the network MyNet1 to SNMP and that of MyNet2 to SSH and SNMP.

```

# vinfra cluster network set-bulk --network MyNet1:snmp --network MyNet2:ssh,snmp
+-----+-----+
| Field  | Value                                |
+-----+-----+
| task_id | c774f55d-c45b-42cd-ac9e-16fc196e9283 |
+-----+-----+

```

Task outcome:

```

# vinfra task show c774f55d-c45b-42cd-ac9e-16fc196e9283
+-----+-----+
| Field  | Value                                |
+-----+-----+
| details |
| name    | backend.presentation.network.roles.tasks.RolesSetBulkChangeTask |
| result  | - id: adf49487-9deb-4180-bb0c-08a906257981 |
|          |   name: MyNet1 |
|          |   roles: |
|          |     - SNMP |
|          |   type: Custom |
|          | - id: 3f6ff4a3-31bc-440b-a36f-d755c80d5932 |
|          |   name: MyNet2 |
|          |   roles: |
|          |     - SNMP |
|          |     - SSH |
|          |   type: Custom |
| state   | success |
| task_id | c774f55d-c45b-42cd-ac9e-16fc196e9283 |
+-----+-----+

```

## 2.2.11 Deleting Networks

### 2.2.11.1 Syntax

```
usage: vinfra cluster network delete [-h] <network>
```

Delete a network.

positional arguments:

```
<network>  Network ID or name
```

```
...
```

### 2.2.11.2 Sample Output

This command deletes the network MyOtherNet.

```
# vinfra cluster network delete MyOtherNet
Operation successful
```

## 2.3 Managing Storage Nodes

### 2.3.1 Adding Nodes to Storage Cluster

#### 2.3.1.1 Syntax

```
usage: vinfra node join [-h] [-f {json,table,value,yaml}] [-c COLUMN] [--wait]
                        [--timeout <seconds>]
                        [--disk <disk>:<role>[:<key1=value1,key2=value2...>]]
                        <node>
```

Join a node to the storage cluster

positional arguments:

```
<node>          Node ID or hostname
```

optional arguments:

```
-h, --help          show this help message and exit
--disk <disk>:<role>[:<key1=value1,key2=value2...>]
                    Disk configuration in the format:
                    disk: disk device ID or name;
                    role: disk role ('cs', 'mds', 'journal', 'mds-
                    journal', 'mds-system', 'cs-system', 'system');
```

```

Comma-separated key=value pairs with keys (optional):
tier: disk tier (0, 1, 2 or 3);
journal-tier: journal (cache) disk tier (0, 1, 2 or
3);
journal-type: journal (cache) disk type ('no_cache',
'inner_cache' or 'external_cache');
journal-disk: journal (cache) disk ID or device name;
journal-size: journal (cache) disk size, in bytes;
bind-address: bind IP address for the metadata
service;
e.g., sda:cs:tier=0,journal-type=inner_cache
(this option can be used multiple times).

```

...

### 2.3.1.2 Sample Output

This command creates a task to add the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4` to the storage cluster and assigns roles to disks: `mds-system` to `sda`, `cs` to `sdb`` and `sdc`.

```

# vinfra node join f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 \
--disk sda:mds-system \
--disk sdb:cs \
--disk sdc:cs
+-----+
| Field  | Value                                |
+-----+
| task_id | a2713068-9544-4ea1-8ec8-69a068cf86f2 |
+-----+

```

Task outcome:

```

# vinfra task show a2713068-9544-4ea1-8ec8-69a068cf86f2
+-----+
| Field  | Value                                |
+-----+
| args   | - f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 |
|        | - 1                                     |
| kwargs | disks:                                |
|        | - id: 85F32403-94A9-465A-9E6C-C1A2B41294FC |
|        |   role: mds-system                     |
|        |   service_params: {}                   |
|        | - id: FE0B5876-E054-489B-B0FD-72429BEFD46A |
|        |   role: cs                              |
|        |   service_params: {}                   |
|        | - id: D3BEF4BB-AA3B-4DB6-9376-BC7CDA636700 |
|        |   role: cs                              |
|        |   service_params: {}                   |
| name   | backend.tasks.node.AddNodeInClusterTask |
| result | {}                                       |

```

```

| state | success |
| task_id | a2713068-9544-4ea1-8ec8-69a068cf86f2 |
+-----+-----+

```

## 2.3.2 Listing Nodes in Storage Cluster

### 2.3.2.1 Syntax

```
usage: vinfra node list [-h] [-f {json,table,value,yaml}] [-c COLUMN] [--full]
```

List storage nodes.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 2.3.2.2 Sample Output

This command lists all nodes registered in Acronis Software-Defined Infrastructure (both unassigned and used in the storage cluster).

```

# vinfra node list
+-----+-----+-----+-----+-----+-----+
| id | host | is_primary | is_online | is_assigned | is_in_ha |
+-----+-----+-----+-----+-----+-----+
| 09bb6b84-70a5-41ae-b342-23e5fc7cc126 | node001.<...> | True | True | True | False |
| 187edb11-38c5-487b-bd7f-57b0fa4b733c | node002.<...> | False | True | True | False |
| e6255aed-d6e7-41b2-ba90-86164c1cd9a6 | node003.<...> | False | True | True | False |
+-----+-----+-----+-----+-----+-----+

```

## 2.3.3 Showing Storage Node Details

### 2.3.3.1 Syntax

```
usage: vinfra node show [-h] [-f {json,table,value,yaml}] [-c COLUMN] <node>
```

Show storage node details.

```
positional arguments:
  <node>                Node ID or hostname
  ...
```

### 2.3.3.2 Sample Output

This command show the details of the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55.

```
# vinfra node show 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| cpu_cores  | 2                                         |
| host       | stor-1.example.com.vstoragedomain.     |
| id         | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 |
| ipaddr     | stor-1.example.com.vstoragedomain.     |
| is_assigned| False                                    |
| is_in_ha   | False                                    |
| is_installing| False                                   |
| is_online  | True                                     |
| is_primary | True                                     |
| is_virt    | True                                     |
| mem_total  | 8201310208                              |
| roles      | management:                             |
|            |   is_primary: true                      |
| tasks      |                                           |
+-----+-----+
```

## 2.3.4 Releasing Nodes from Storage Cluster

### 2.3.4.1 Syntax

```
usage: vinfra node release [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                          [--wait] [--timeout <seconds>] [--force]
                          <node>
```

Release a node from the storage cluster. Start data migration from the node as well as cluster replication and rebalancing to meet the configured redundancy level.

```
positional arguments:
  <node>                Node ID or hostname
```

```
optional arguments:
  -h, --help            show this help message and exit
```

```
--force          Release node without data migration.
...
```

### 2.3.4.2 Sample Output

This command creates a task to release the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4` from the storage cluster with migration of data to maintain the set redundancy mode.

```
# vinfra node release f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
+-----+-----+
| Field  | Value                                |
+-----+-----+
| task_id | c2a653a2-8991-4b3a-8bdf-5c0872aa75b3 |
+-----+-----+
```

Task outcome:

```
# vinfra task show c2a653a2-8991-4b3a-8bdf-5c0872aa75b3
+-----+-----+
| Field  | Value                                |
+-----+-----+
| args   | - f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 |
|        | - false                                |
| kwargs | {}                                     |
| name   | backend.tasks.node.ReleaseNodeTask    |
| state  | success                                |
| task_id | c2a653a2-8991-4b3a-8bdf-5c0872aa75b3 |
+-----+-----+
```

## 2.3.5 Forgetting Nodes

### 2.3.5.1 Syntax

```
usage: vinfra node forget [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                        [--wait] [--timeout <seconds>]
                        <node>
```

Remove a node from the storage cluster.

positional arguments:

```
<node>          Node ID or hostname
...
```



### 2.3.5.2 Sample Output

This command creates a task to unregister the node with the ID `fd1e46de-6e17-4571-bf6b-1ac34ec1c225` from Acronis Software-Defined Infrastructure.

```
# vinfra node forget fd1e46de-6e17-4571-bf6b-1ac34ec1c225
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 0eac3b74-e8f5-4974-9efe-a9070187d83c |
+-----+-----+
```

Task outcome:

```
# vinfra task show 0eac3b74-e8f5-4974-9efe-a9070187d83c
+-----+-----+
| Field | Value |
+-----+-----+
| args | - fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
| kwargs | {} |
| name | backend.tasks.node.DeleteNodeTask |
| state | success |
| task_id | 0eac3b74-e8f5-4974-9efe-a9070187d83c |
+-----+-----+
```

## 2.4 Managing Node Network Interfaces

### 2.4.1 Listing Node Network Interfaces

#### 2.4.1.1 Syntax

```
usage: vinfra node network iface list [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--full]
                                         (-a | --node <node>)
```

List node network interfaces.

optional arguments:

```
-h, --help          show this help message and exit
-a, --all           List all network interfaces on all nodes.
--node <node>     Node ID or hostname to list network interfaces on
```

output formatters:

output formatter options

```
-f {json,table,value,yaml}, --format {json,table,value,yaml}
```

...

### 2.4.1.2 Sample Output

This command shows network interfaces of the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55.

```
# vinfra node network iface list --node 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+-----+-----+-----+
| name | node_id | ipv4 | state | network |
+-----+-----+-----+-----+-----+
| eth0 | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 | - 10.94.29.218/16 | up | Public |
| eth1 | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 | - 10.37.130.101/24 | up | Private |
+-----+-----+-----+-----+-----+
```

## 2.4.2 Showing Node Network Interface Details

### 2.4.2.1 Syntax

```
usage: vinfra node network iface show [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] --node <node>
                                         <iface>
```

Show details of a network interface.

positional arguments:

<iface> Network interface name

optional arguments:

-h, --help show this help message and exit  
--node <node> Node ID or hostname

...

### 2.4.2.2 Sample Output

This command shows the details of the network interface `eth0` located on the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55.

```
# vinfra node network iface show eth0 --node 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+
| Field | Value |
+-----+-----+
| contained_in | |
| dhcp4 | 10.94.29.218 |
| dhcp4_enabled | True |
+-----+-----+
```

```

| dhcp6           | fe80::21c:42ff:fe2a:4fdf |
| dhcp6_enabled  | True                     |
| dns4           | - 127.0.0.1             |
| dns6           | []                       |
| duplex         |                          |
| gw4            | 10.94.0.1               |
| gw6            |                          |
| ignore_auto_dns_v4 | False                   |
| ignore_auto_dns_v6 | False                   |
| ignore_auto_routes_v4 | False                   |
| ignore_auto_routes_v6 | False                   |
| ipv4           | - 10.94.29.218/16       |
| ipv6           | - fe80::21c:42ff:fe2a:4fdf/64 |
| mac_addr       | 00:1c:42:2a:4f:df      |
| mtu            | 1500                    |
| multicast      | True                     |
| name           | eth0                     |
| node_id        | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 |
| plugged        | True                     |
| roles_set      | 237e58dd-6c10-49c1-be7f-7ddf7de2efd1 |
| rx_bytes       | 1844502614              |
| rx_dropped     | 0                        |
| rx_errors      | 0                        |
| rx_overruns    | 0                        |
| rx_packets     | 11543284                |
| speeds         | current: null           |
|                | max: null               |
| state          | up                       |
| tx_bytes       | 28477979                |
| tx_dropped     | 0                        |
| tx_errors      | 0                        |
| tx_overruns    | 0                        |
| tx_packets     | 107649                  |
| type           | iface                    |
+-----+-----+

```

## 2.4.3 Bringing Node Network Interfaces Up and Down

### 2.4.3.1 Syntax

Bring a network interface up:

```

usage: vinfra node network iface up [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] --node <node>
      <iface>

```

Bring up a network interface.

```
positional arguments:
  <iface>           Network interface name

optional arguments:
  -h, --help          show this help message and exit
  --node <node>      Node ID or hostname
  ...
```

Bring a network interface down:

```
usage: vinfra node network iface down [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] --node <node>
                                         <iface>
```

Bring down a network interface.

```
positional arguments:
  <iface>           Network interface name

optional arguments:
  -h, --help          show this help message and exit
  --node <node>      Node ID or hostname
  ...
```

### 2.4.3.2 Sample Output

This commands brings up the network interface eth2 located on the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55.

```
# vinfra node network iface up eth2 --node 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+
| Field          | Value                                |
+-----+-----+
| contained_in   |                                       |
| dhcp4          | 10.37.130.138                        |
| dhcp4_enabled  | True                                  |
| dhcp6          | fe80::21c:42ff:fef8:5b90             |
| dhcp6_enabled  | True                                  |
| dns4           | - 127.0.0.1                           |
| dns6           | []                                     |
| duplex         |                                       |
| gw4            | 10.94.0.1                             |
| gw6            |                                       |
| ignore_auto_dns_v4 | False                                |
| ignore_auto_dns_v6 | False                                |
| ignore_auto_routes_v4 | False                                |
| ignore_auto_routes_v6 | False                                |
| ipv4           | - 10.37.130.138/24                    |
| ipv6           | - fe80::21c:42ff:fef8:5b90/64         |
| mac_addr       | 00:1c:42:f8:5b:90                     |
```

```

| mtu | 1500 |
| multicast | True |
| name | eth2 |
| node_id | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 |
| plugged | True |
| roles_set | |
| rx_bytes | 97632 |
| rx_dropped | 0 |
| rx_errors | 0 |
| rx_overruns | 0 |
| rx_packets | 1258 |
| speeds | current: null |
| | max: null |
| state | up |
| tx_bytes | 1116 |
| tx_dropped | 0 |
| tx_errors | 0 |
| tx_overruns | 0 |
| tx_packets | 8 |
| type | iface |
+-----+-----+

```

This command brings down the network interface eth2 located on the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55.

```

# vinfra node network iface down eth2 --node 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+
| Field | Value |
+-----+-----+
| contained_in | |
| dhcp4 | |
| dhcp4_enabled | True |
| dhcp6 | |
| dhcp6_enabled | True |
| dns4 | - 127.0.0.1 |
| dns6 | [] |
| duplex | |
| gw4 | 10.94.0.1 |
| gw6 | |
| ignore_auto_dns_v4 | False |
| ignore_auto_dns_v6 | False |
| ignore_auto_routes_v4 | False |
| ignore_auto_routes_v6 | False |
| ipv4 | [] |
| ipv6 | [] |
| mac_addr | 00:1c:42:f8:5b:90 |
| mtu | 1500 |
| multicast | True |
| name | eth2 |
| node_id | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 |
| plugged | False |
| roles_set | |

```

```

| rx_bytes          | 97984          |
| rx_dropped       | 0              |
| rx_errors        | 0              |
| rx_overruns      | 0              |
| rx_packets       | 1264           |
| speeds           | current: null  |
|                  | max: null      |
| state            | down           |
| tx_bytes         | 1116           |
| tx_dropped       | 0              |
| tx_errors        | 0              |
| tx_overruns      | 0              |
| tx_packets       | 8              |
| type             | iface          |
+-----+-----+

```

## 2.4.4 Modifying Node Network Interface Settings

### 2.4.4.1 Syntax

```

usage: vinfra node network iface set [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN] [--wait]
                                     [--timeout <seconds>] [--ipv4 <ipv4>]
                                     [--ipv6 <ipv6>] [--gw4 <gw4>]
                                     [--gw6 <gw6>] [--mtu <mtu>]
                                     [--dhcp4 | --no-dhcp4]
                                     [--dhcp6 | --no-dhcp6]
                                     [--auto-routes-v4 | --ignore-auto-routes-v4]
                                     [--auto-routes-v6 | --ignore-auto-routes-v6]
                                     [--network <network>]
                                     [--connected-mode | --datagram-mode]
                                     --node <node>
                                     <iface>

```

Modify network interface parameters (overwrites omitted options to interface default values).

#### positional arguments:

<iface> Network interface name

#### optional arguments:

-h, --help show this help message and exit  
--ipv4 <ipv4> A comma-separated list of IPv4 addresses  
--ipv6 <ipv6> A comma-separated list of IPv6 addresses  
--gw4 <gw4> Gateway IPv4 address  
--gw6 <gw6> Gateway IPv6 address  
--mtu <mtu> MTU interface value  
--dhcp4 Enable DHCPv4.  
--no-dhcp4 Disable DHCPv4.

```

--dhcp6           Enable DHCPv6.
--no-dhcp6        Disable DHCPv6.
--auto-routes-v4  Enable automatic IPv4 routes.
--ignore-auto-routes-v4
                  Ignore automatic IPv4 routes.
--auto-routes-v6  Enable automatic IPv6 routes.
--ignore-auto-routes-v6
                  Ignore automatic IPv6 routes.
--network <network> Network ID or name
--connected-mode  Enable connected mode (InfiniBand interfaces only).
--datagram-mode   Enable datagram mode (InfiniBand interfaces only).
--node <node>    Node ID or hostname
...

```

### 2.4.4.2 Sample Output

This command creates a task to assign the network interface eth2 located on the node with the ID 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 to the network Private.

```

# vinfra node network iface set eth2 --network Private \
--node 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 8a378098-6760-4fe9-ac20-1f18a8ed9d2e |
+-----+-----+

```

Task outcome:

```

# vinfra task show 8a378098-6760-4fe9-ac20-1f18a8ed9d2e
+-----+-----+
| Field | Value |
+-----+-----+
| args  | - 4f96acf5-3bc8-4094-bcb6-4d1953be7b55 |
|      | - eth2 |
| kwargs | roles_set: 6095a997-e5f1-493d-a750-41ddf277153b |
| name   | backend.presentation.network.tasks.NetworkInterfaceChangeTask |
| result | contained_in: null |
|      | dhcp4: null |
|      | dhcp4_enabled: false |
|      | dhcp6: null |
|      | dhcp6_enabled: false |
|      | duplex: null |
|      | gw4: null |
|      | gw6: null |
|      | ignore_auto_routes_v4: true |
|      | ignore_auto_routes_v6: true |
|      | ipv4: |
|      | - 10.37.130.103/24 |
|      | ipv6: |
+-----+-----+

```

```

|         | - fe80::21c:42ff:fe75:7c4d/64
|         | mac_addr: 00:1c:42:75:7c:4d
|         | mtu: 1500
|         | multicast: true
|         | name: eth2
|         | node_id: 4f96acf5-3bc8-4094-bcb6-4d1953be7b55
|         | plugged: true
|         | roles_set: 6095a997-e5f1-493d-a750-41ddf277153b
|         | rx_bytes: 38156
|         | rx_dropped: 0
|         | rx_errors: 0
|         | rx_overruns: 0
|         | rx_packets: 225
|         | speeds:
|         |   current: null
|         |   max: null
|         | state: up
|         | tx_bytes: 13087
|         | tx_dropped: 0
|         | tx_errors: 0
|         | tx_overruns: 0
|         | tx_packets: 145
|         | type: iface
| state   | success
| task_id | 8a378098-6760-4fe9-ac20-1f18a8ed9d2e
+-----+

```

## 2.4.5 Bonding Node Network Interfaces

### 2.4.5.1 Syntax

Creating a bond:

```

usage: vinfra node network bond create [-h] [-f {json,table,value,yaml}]
    [-c COLUMN] [--wait]
    [--timeout <seconds>] [--ipv4 <ipv4>]
    [--ipv6 <ipv6>] [--gw4 <gw4>]
    [--gw6 <gw6>] [--mtu <mtu>]
    [--dhcp4 | --no-dhcp4]
    [--dhcp6 | --no-dhcp6]
    [--auto-routes-v4 | --ignore-auto-routes-v4]
    [--auto-routes-v6 | --ignore-auto-routes-v6]
    [--network <network>]
    [--bonding-opts <bonding_opts>] --node
    <node> --bond-type <bond-type> --ifaces
    <ifaces>

```

Create a network bonding.



```

optional arguments:
-h, --help                show this help message and exit
--ipv4 <ipv4>            A comma-separated list of IPv4 addresses
--ipv6 <ipv6>            A comma-separated list of IPv6 addresses
--gw4 <gw4>              Gateway IPv4 address
--gw6 <gw6>              Gateway IPv6 address
--mtu <mtu>              MTU interface value
--dhcp4                  Enable DHCPv4.
--no-dhcp4               Disable DHCPv4.
--dhcp6                  Enable DHCPv6.
--no-dhcp6               Disable DHCPv6.
--auto-routes-v4        Enable automatic IPv4 routes.
--ignore-auto-routes-v4 Ignore automatic IPv4 routes.
--auto-routes-v6        Enable automatic IPv6 routes.
--ignore-auto-routes-v6 Ignore automatic IPv6 routes.
--network <network>     Network ID or name
--bonding-opts <bonding_opts>
                        Additional bonding options
--node <node>           Node ID or hostname
--bond-type <bond-type> Bond type ('balance-rr', 'active-backup', 'balance-
                        xor', 'broadcast', '802.3ad', 'balance-tlb', 'balance-
                        alb')
--ifaces <ifaces>       A comma-separated list of network interface names,
                        e.g., 'iface1,iface2,...,ifaceN'
...

```

#### Deleting a bond:

```

usage: vinfra node network bond delete [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] --node <node> [--wait]
                                         [--timeout <seconds>]
                                         <iface>

```

Delete a network bonding.

```

positional arguments:
  <iface>                Network interface name

```

```

optional arguments:
-h, --help                show this help message and exit
--node <node>            Node ID or hostname
...

```

### 2.4.5.2 Sample Output

This command creates a task to bond network interfaces eth2 and eth3 into bond0 of the type balance-xor on the node with the ID fd1e46de-6e17-4571-bf6b-1ac34ec1c225.

```
# vinfra node network bond create --ifaces eth2,eth3 --bond-type balance-xor \
--dhcp4 --node fd1e46de-6e17-4571-bf6b-1ac34ec1c225
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | becf96ad-9e39-4bec-b82c-4e1219a196de |
+-----+-----+
```

Task outcome:

```
# vinfra task show becf96ad-9e39-4bec-b82c-4e1219a196de
+-----+-----+
| Field | Value |
+-----+-----+
| args | - fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
| kwargs | bond_type: balance-xor |
| | ifaces: |
| | - eth2 |
| | - eth3 |
| | registration_token: 3102ed1a |
| name | backend.presentation.network.tasks.NetworkInterfaceCreateBondingTask |
| result | bond_type: balance-xor |
| | dhcp4: 10.37.130.117 |
| | dhcp4_enabled: true |
| | dhcp6: fe80::21c:42ff:fe81:27d0 |
| | dhcp6_enabled: true |
| | duplex: null |
| | gw4: 10.94.0.1 |
| | gw6: null |
| | ignore_auto_routes_v4: false |
| | ignore_auto_routes_v6: false |
| | ipv4: |
| | - 10.37.130.117/24 |
| | ipv6: |
| | - fe80::21c:42ff:fe81:27d0/64 |
| | mac_addr: 00:1c:42:81:27:d0 |
| | mtu: 1500 |
| | multicast: true |
| | name: bond0 |
| | node_id: fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
| | plugged: true |
| | roles_set: '' |
| | rx_bytes: 3048 |
| | rx_dropped: 0 |
| | rx_errors: 0 |
| | rx_overruns: 0 |
+-----+-----+
```

```

|         | rx_packets: 22
|         | speeds:
|         |   current: null
|         |   max: null
|         | state: up
|         | tx_bytes: 1782
|         | tx_dropped: 0
|         | tx_errors: 0
|         | tx_overruns: 0
|         | tx_packets: 13
|         | type: bonding
| state   | success
| task_id | becf96ad-9e39-4bec-b82c-4e1219a196de
+-----+

```

This command creates a task to delete the bond `bond0` from the node with the ID `fd1e46de-6e17-4571-bf6b-1ac34ec1c225`.

```

# vinfra node network bond delete bond0 --node fd1e46de-6e17-4571-bf6b-1ac34ec1c225
+-----+
| Field  | Value
+-----+
| task_id | 91a0825a-3d33-41a0-8b87-6fc151dbc45f |
+-----+

```

Task outcome:

```

# vinfra task show 91a0825a-3d33-41a0-8b87-6fc151dbc45f
+-----+
| Field  | Value
+-----+
| args   | - fd1e46de-6e17-4571-bf6b-1ac34ec1c225
|        | - bond0
| kwargs | {}
| name   | backend.presentation.network.tasks.NetworkInterfaceRemoveTask
| state  | success
| task_id | 91a0825a-3d33-41a0-8b87-6fc151dbc45f
+-----+

```

## 2.4.6 Creating VLANs

### 2.4.6.1 Syntax

Creating a VLAN:

```

usage: vinfra node network vlan create [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--wait]
                                         [--timeout <seconds>] [--ipv4 <ipv4>]

```

```

[--ipv6 <ipv6>] [--gw4 <gw4>]
[--gw6 <gw6>] [--mtu <mtu>]
[--dhcp4 | --no-dhcp4]
[--dhcp6 | --no-dhcp6]
[--auto-routes-v4 | --ignore-auto-routes-v4]
[--auto-routes-v6 | --ignore-auto-routes-v6]
[--network <network>] --node <node>
--iface <iface> --tag <tag>

```

Create a VLAN

optional arguments:

```

-h, --help          show this help message and exit
--ipv4 <ipv4>      A comma-separated list of IPv4 addresses
--ipv6 <ipv6>      A comma-separated list of IPv6 addresses
--gw4 <gw4>        Gateway IPv4 address
--gw6 <gw6>        Gateway IPv6 address
--mtu <mtu>        MTU interface value
--dhcp4            Enable DHCPv4.
--no-dhcp4         Disable DHCPv4.
--dhcp6            Enable DHCPv6.
--no-dhcp6         Disable DHCPv6.
--auto-routes-v4  Enable automatic IPv4 routes.
--ignore-auto-routes-v4
                    Ignore automatic IPv4 routes.
--auto-routes-v6  Enable automatic IPv6 routes.
--ignore-auto-routes-v6
                    Ignore automatic IPv6 routes.
--network <network> Network ID or name
--node <node>      Node ID or hostname
--iface <iface>    Interface name
--tag <tag>        VLAN tag number

```

...

Deleting a VLAN:

```

usage: vinfra node network vlan delete [-h] [-f {json,table,value,yaml}]
    [-c COLUMN] --node <node> [--wait]
    [--timeout <seconds>]
    <iface>

```

Delete a VLAN.

positional arguments:

```

<iface>          Network interface name

```

optional arguments:

```

-h, --help          show this help message and exit
--node <node>      Node ID or hostname

```

...

### 2.4.6.2 Sample Output

This command creates a task to create a VLAN with the tag 100 on the network interface eth2 on the node with the ID fd1e46de-6e17-4571-bf6b-1ac34ec1c225.

```
# vinfra node network vlan create --iface eth2 --tag 100 --dhcp4 \
--node fd1e46de-6e17-4571-bf6b-1ac34ec1c225
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 0b978acd-367b-47ad-8572-4f4e6ffb8877 |
+-----+-----+
```

Task outcome:

```
# vinfra task show 0b978acd-367b-47ad-8572-4f4e6ffb8877
+-----+-----+
| Field | Value |
+-----+-----+
| args | - fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
| kwargs | iface: eth2 |
| | tag: 100 |
| name | backend.presentation.network.tasks.NetworkInterfaceCreateVlanTask |
| result | built_on: eth2 |
| | dhcp4: null |
| | dhcp4_enabled: false |
| | dhcp6: null |
| | dhcp6_enabled: false |
| | duplex: null |
| | gw4: null |
| | gw6: null |
| | ignore_auto_routes_v4: true |
| | ignore_auto_routes_v6: true |
| | ipv4: [] |
| | ipv6: |
| | - fe80::21c:42ff:fe81:27d0/64 |
| | mac_addr: 00:1c:42:81:27:d0 |
| | mtu: 1500 |
| | multicast: true |
| | name: eth2.100 |
| | node_id: fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
| | plugged: true |
| | roles_set: '' |
| | rx_bytes: 0 |
| | rx_dropped: 0 |
| | rx_errors: 0 |
| | rx_overruns: 0 |
| | rx_packets: 0 |
| | speeds: |
| | current: null |
| | max: null |
+-----+-----+
```

```

|         | state: up
|         | tag: 100
|         | tx_bytes: 738
|         | tx_dropped: 0
|         | tx_errors: 0
|         | tx_overruns: 0
|         | tx_packets: 7
|         | type: vlan
| state   | success
| task_id | 0b978acd-367b-47ad-8572-4f4e6ffb8877
+-----+

```

This command creates a task to delete the VLAN interface `eth2.100` from the node with the ID `fd1e46de-6e17-4571-bf6b-1ac34ec1c225`.

```

# vinfra node network vlan delete eth2.100 --node fd1e46de-6e17-4571-bf6b-1ac34ec1c225
+-----+
| Field  | Value
+-----+
| task_id | b7e94ae1-14aa-4e73-b71a-605cf8b3f458 |
+-----+

```

Task outcome:

```

# vinfra task show b7e94ae1-14aa-4e73-b71a-605cf8b3f458
+-----+
| Field  | Value
+-----+
| args   | - fd1e46de-6e17-4571-bf6b-1ac34ec1c225
|        | - eth2.100
| kwargs | {}
| name   | backend.presentation.network.tasks.NetworkInterfaceRemoveTask
| state  | success
| task_id | b7e94ae1-14aa-4e73-b71a-605cf8b3f458
+-----+

```

## 2.5 Managing Node Disks

### 2.5.1 Listing Node Disks

#### 2.5.1.1 Syntax

```

usage: vinfra node disk list [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                             [--full] (-a | --node <node>)

```

List node disks.

```

optional arguments:
  -h, --help            show this help message and exit
  -a, --all             List disks on all nodes.
  --node <node>       Node ID or hostname to list disks on

output formatters:
  output formatter options

  -f {json,table,value,yaml}, --format {json,table,value,yaml}
  ...

```

### 2.5.1.2 Sample Output

This command lists disks on the node with the ID 94d58604-6f30-4339-8578-adb7903b7277. (The output is abridged to fit on page.)

```

# vinfra node disk list --node 94d58604-6f30-4339-8578-adb7903b7277 \
-c id -c node_id -c device -c used -c size -c role
+-----+-----+-----+-----+-----+-----+
| id          | node_id      | device | used  | size  | role      |
+-----+-----+-----+-----+-----+-----+
| E0B7CE6F-<...> | 94d58604-<...> | sda    | 5.5GiB | 239.1GiB | mds-system |
| EAC7DF5D-<...> | 94d58604-<...> | sdb    | 2.1GiB | 1007.8GiB | cs         |
| 49D792CA-<...> | 94d58604-<...> | sdc    | 2.1GiB | 1007.8GiB | cs         |
+-----+-----+-----+-----+-----+-----+

```

## 2.5.2 Showing Node Disk Details

### 2.5.2.1 Syntax

```

usage: vinfra node disk show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                             --node <node>
                             <disk>

Show details of a disk.

positional arguments:
  <disk>                Disk ID or device name

optional arguments:
  -h, --help            show this help message and exit
  --node <node>        Node ID or hostname
  ...

```

## 2.5.2.2 Sample Output

This command shows the details of the disk with the ID EAC7DF5D-9E60-4444-85F7-5CA5738399CC attached to the node with the ID 94d58604-6f30-4339-8578-adb7903b7277.

```
# vinfra node disk show EAC7DF5D-9E60-4444-85F7-5CA5738399CC \
--node 94d58604-6f30-4339-8578-adb7903b7277
+-----+-----+
| Field          | Value                                |
+-----+-----+
| being_released | False                                |
| device         | sdb                                  |
| disk_status    | ok                                    |
| encryption     |                                       |
| id             | EAC7DF5D-9E60-4444-85F7-5CA5738399CC |
| is_blink_available | False                                |
| is_blinking    | False                                |
| latency        |                                       |
| lun_id         |                                       |
| model          | Vz_HARDDISK2                         |
| mountpoint     | /vstorage/33aac2d5                  |
| node_id        | 94d58604-6f30-4339-8578-adb7903b7277 |
| role           | cs                                    |
| rpm            |                                       |
| serial_number  | 45589b5823ce4c188b55                |
| service_id     | 1026                                  |
| service_params | journal_type: inner_cache           |
|                | tier: 0                               |
| service_status | ok                                    |
| slot           |                                       |
| smart_status   | not_supported                        |
| space          | full_size: 1099511627776             |
|                | size: 1082101518336                  |
|                | used: 2246164480                      |
| tasks         |                                       |
| temperature    | 0.0                                   |
| transport      |                                       |
| type           | hdd                                   |
+-----+-----+
```

## 2.5.3 Assigning Storage Roles to Disks

### 2.5.3.1 Syntax

```
usage: vinfra node disk assign [-h] [-f {json,table,value,yaml}] [-c COLUMN]
[--wait] [--timeout <seconds>] --disk
<disk>:<role>[:<key1=value1,key2=value2...>]
--node <node>
```



Add multiple disks to the storage cluster.

optional arguments:

```
-h, --help          show this help message and exit
--disk <disk>:<role>[:<key1=value1,key2=value2...>]
                    Disk configuration in the format:
                    disk: disk device ID or name;
                    role: disk role ('cs', 'mds', 'journal', 'mds-
journal', 'mds-system', 'cs-system', 'system');
                    Comma-separated key=value pairs with keys (optional):
                    tier: disk tier (0, 1, 2 or 3);
                    journal-tier: journal (cache) disk tier (0, 1, 2 or
3);
                    journal-type: journal (cache) disk type ('no_cache',
'inner_cache' or 'external_cache');
                    journal-disk: journal (cache) disk ID or device name;
                    journal-size: journal (cache) disk size, in bytes;
                    bind-address: bind IP address for the metadata
service;
                    e.g., sda:cs:tier=0,journal-type=inner_cache
                    (this option can be used multiple times).
--node <node>      Node ID or hostname
...

```

### 2.5.3.2 Sample Output

This command creates a task to assign the role `cs` to the disk `sd` on the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4`

```
# vinfra node disk assign --disk sdc:cs --node f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
+-----+
| Field  | Value                                |
+-----+
| task_id | 080337ba-0508-44a0-9363-eddcd9df9f0d |
+-----+

```

Task outcome:

```
# vinfra task show 080337ba-0508-44a0-9363-eddcd9df9f0d
+-----+
| Field  | Value                                |
+-----+
| args   | []                                    |
| kwargs | cluster_id: 1                        |
|        | disks:                                |
|        |   - id: D3BEF4BB-AA3B-4DB6-9376-BC7CDA636700 |
|        |     role: cs                          |
|        |     service_params: {}                |
|        | logger:                                |
+-----+

```

```

|         |   __classname: backend.logger.tracer.TracingLogger   |
|         |   __dict:                                             |
|         |     prefix: POST /api/v2/1/nodes/f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4/disks/ |
|         |     token: '3215629651314950'                       |
|         | node_id: f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4      |
| name    | backend.tasks.disks.BulkAssignDiskTask              |
| result  | {}                                                    |
| state   | success                                              |
| task_id | 080337ba-0508-44a0-9363-eddc9df9f0d                |
+-----+-----+

```

## 2.5.4 Releasing Disks from Storage Roles

### 2.5.4.1 Syntax

```

usage: vinfra node disk release [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--wait] [--timeout <seconds>] [--force]
                                --node <node>
                                <disk>

```

Release a disk from the storage cluster. Start data migration from the node as well as cluster replication and rebalancing to meet the configured redundancy level.

positional arguments:

<disk> Disk ID or device name

optional arguments:

-h, --help show this help message and exit  
 --force Release without data migration.  
 --node <node> Node ID or hostname

...

### 2.5.4.2 Sample Output

This command creates a task to release the role `cs` from the disk `sd` on the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4`.

```

# vinfra node disk release sdc --node f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
+-----+-----+
| Field  | Value |
+-----+-----+
| task_id | 587a936d-3953-481c-a2cd-b1223b890bec |
+-----+-----+

```

Task outcome:

```
# vinfra task show 587a936d-3953-481c-a2cd-b1223b890bec
+-----+-----+
| Field | Value |
+-----+-----+
| args  | []    |
| kwargs | cluster_id: 1
|       | disk_id: 43EF3400-EA95-43DE-B624-3D7ED0F9DDDD
|       | force: false
|       | logger:
|       |   __classname: backend.logger.tracer.TracingLogger
|       |   __dict:
|       |     prefix: POST /api/v2/1/nodes/f59dabdb-
|       |     bd1c-4944-8af2-26b8fe9ff8d4/disks/43EF3400-EA95-43DE-B624-3D7ED0F9DDDD/release/
|       |     token: '3217122839314940'
|       |     node_id: f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
| name  | backend.tasks.disks.ReleaseDiskTask
| state | success
| task_id | 587a936d-3953-481c-a2cd-b1223b890bec
+-----+-----+
```

## 2.5.5 Blinking Disk Bay LEDs

### 2.5.5.1 Syntax

Start blinking:

```
usage: vinfra node disk blink on [-h] --node <node> <disk>

Start blinking the specified disk bay to identify disk for maintenance
purposes.

positional arguments:
  <disk>          Disk ID or device name
  ...
```

Stop blinking:

```
usage: vinfra node disk blink off [-h] --node <node> <disk>

Stop blinking the specified disk bay.

positional arguments:
  <disk>          Disk ID or device name
  ...
```

### 2.5.5.2 Sample Output

This command starts blinking the disk `sda` on the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4`.

```
# vinfra node disk blink on sda --node f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
```

This command stops blinking the disk `sda` on the node with the ID `f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4`.

```
# vinfra node disk blink off sda --node f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4
```

## 2.5.6 Connecting iSCSI Devices as Disks to Nodes

### 2.5.6.1 Syntax

```
usage: vinfra node iscsi target add [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN] [--wait] [--timeout <seconds>]
                                     [--auth-username <auth-username>]
                                     [--auth-password <auth-password>] --portal
                                     <portal> --node <node>
                                     <target-name>
```

Add an iSCSI target as a disk to a node.

positional arguments:

<target-name> Target name

optional arguments:

-h, --help show this help message and exit

--auth-username <auth-username>

User name

--auth-password <auth-password>

User password

--portal <portal> Portal IP address in the format IP:port (this option can be specified multiple times).

--node <node> Node ID or hostname

...

### 2.5.6.2 Sample Output

This command creates a task to connect a remote iSCSI target `iqn.2014-06.com.vstorage:target1` with the IP address `172.16.24.244` and port `3260` to the node with the ID `f1931be7-0a01-4977-bfef-51a392adcd94`.

```
# vinfra node iscsi target add iqn.2014-06.com.vstorage:target1 \
--portal 172.16.24.244:3260 --node f1931be7-0a01-4977-bfef-51a392adcd94
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

```

| Field | Value |
+-----+-----+
| task_id | c42bfbe5-7292-41c2-91cb-446795535ab9 |
+-----+-----+

```

Task outcome:

```

# vinfra task show c42bfbe5-7292-41c2-91cb-446795535ab9
+-----+-----+
| Field | Value |
+-----+-----+
| args | - f1931be7-0a01-4977-bfef-51a392adcd94 |
| kwargs | portals: |
| | - address: 172.16.24.244 |
| | port: 3260 |
| | target_name: iqn.2014-06.com.vstorage:target1 |
| name | backend.presentation.nodes.iscsi_initiators.tasks.ConnectTask |
| result | connected: true |
| | portals: |
| | - address: 172.16.24.244 |
| | port: 3260 |
| | state: connected |
| | target_name: iqn.2014-06.com.vstorage:target1 |
| state | success |
| task_id | c42bfbe5-7292-41c2-91cb-446795535ab9 |
+-----+-----+

```

## 2.5.7 Disconnecting iSCSI Devices from Nodes

### 2.5.7.1 Syntax

```

usage: vinfra node iscsi target delete [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--wait]
                                         [--timeout <seconds>] --node <node>
                                         <target-name>

```

Delete an iSCSI target from a node.

positional arguments:  
 <target-name> Target name

optional arguments:  
 -h, --help show this help message and exit  
 --node <node> Node ID or hostname

...

This command creates a task to disconnect a remote iSCSI target `iqn.2014-06.com.vstorage:target1` from the node with the ID `f1931be7-0a01-4977-bfef-51a392adcd94`.

```
# vinfra node iscsi target delete iqn.2014-06.com.vstorage:target1 \
--node f1931be7-0a01-4977-bfef-51a392adcd94
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | c8dc74ee-86d6-4b89-8b6f-153ff1e78cb7 |
+-----+-----+
```

Task outcome:

```
# vinfra task show c8dc74ee-86d6-4b89-8b6f-153ff1e78cb7
+-----+-----+
| Field | Value |
+-----+-----+
| args | - f1931be7-0a01-4977-bfef-51a392adcd94 |
| kwargs | target_name: iqn.2014-06.com.vstorage:target1 |
| name | backend.presentation.nodes.iscsi_initiators.tasks.DisconnectTask |
| state | success |
| task_id | c8dc74ee-86d6-4b89-8b6f-153ff1e78cb7 |
+-----+-----+
```

## 2.6 Creating Storage Cluster

### 2.6.1 Syntax

```
usage: vinfra cluster create [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                             [--wait] [--timeout <seconds>]
                             [--tier-encryption {0,1,2,3}]
                             [--disk <disk>:<role>[:<key1=value1,key2=value2...>]]
                             --node <node>
                             <cluster-name>
```

Create a storage cluster

positional arguments:

<cluster-name> Storage cluster name

optional arguments:

-h, --help show this help message and exit

--tier-encryption {0,1,2,3} Enable encryption for storage cluster tiers. Encryption is disabled by default. This option can be used multiple times.

--disk <disk>:<role>[:<key1=value1,key2=value2...>] Disk configuration in the format:  
 disk: disk device ID or name;  
 role: disk role ('cs', 'mds', 'journal', 'mds-

```

journal', 'mds-system', 'cs-system', 'system');
Comma-separated key=value pairs with keys (optional):
tier: disk tier (0, 1, 2 or 3);
journal-tier: journal (cache) disk tier (0, 1, 2 or
3);
journal-type: journal (cache) disk type ('no_cache',
'inner_cache' or 'external_cache');
journal-disk: journal (cache) disk ID or device name;
journal-size: journal (cache) disk size, in bytes;
bind-address: bind IP address for the metadata
service;
e.g., sda:cs:tier=0,journal-type=inner_cache
(this option can be used multiple times).
--node <node>      Node ID or hostname
...

```

## 2.6.2 Sample Output

This command creates a task to create the storage cluster stor1 on the node with the ID 94d58604-6f30-4339-8578-adb7903b7277. As disk roles are not explicitly specified, they are assigned automatically: mds-system to the system disk, and cs to all other disks.

```

# vinfra cluster create stor1 --node 94d58604-6f30-4339-8578-adb7903b7277
+-----+
| Field | Value |
+-----+
| task_id | d9ca8e1d-8ac8-4459-898b-2d803efd7bc6 |
+-----+

```

Task outcome:

```

# vinfra task show d9ca8e1d-8ac8-4459-898b-2d803efd7bc6
+-----+
| Field | Value |
+-----+
| args  | - stor1 |
|       | - 94d58604-6f30-4339-8578-adb7903b7277 |
|       | - null |
|       | - null |
| kwargs | {} |
| name  | backend.tasks.cluster.CreateNewCluster |
| result | cluster_id: 1 |
| state | success |
| task_id | d9ca8e1d-8ac8-4459-898b-2d803efd7bc6 |
+-----+

```

## 2.7 Showing Storage Cluster Overview and Details

### 2.7.1 Showing Storage Cluster Overview

#### 2.7.1.1 Syntax

```
usage: vinfra cluster overview [-h] [-f {json,table,value,yaml}] [-c COLUMN]
```

```
Show storage cluster overview.
```

```
...
```

#### 2.7.1.2 Sample Output

This command shows an overview of the cluster.

```
# vinfra cluster overview
+-----+-----+
| Field          | Value          |
+-----+-----+
| chunks         | blocked: 0     |
|                | degraded: 0    |
|                | deleting: 0    |
|                | healthy: 2     |
|                | offline: 0     |
|                | overcommitted: 0 |
|                | pending: 0     |
|                | replicating: 0 |
|                | standby: 0     |
|                | total: 2       |
|                | unique: 2      |
|                | urgent: 0      |
|                | void: 0        |
| fs_stat        | chunk_maps: 2  |
|                | chunk_nodes: 2 |
|                | file_maps: 2   |
|                | files: 9       |
|                | inodes: 9      |
|                | used_size: 11335680 |
| id             | 1              |
| license        | capacity: 1099511627776 |
|                | expiration_ts: null |
|                | keynumber: null |
|                | status: 0      |
|                | used_size: 11335680 |
```



```

| logic_space      | free: 1099500292096 |
|                  | total: 1099511627776 |
|                  | used: 11335680      |
| name            | stor1               |
| repl            | eta: null           |
|                  | reads: 0            |
|                  | writes: 0           |
| resistance      | to_lose: 0         |
|                  | total: 1            |
| space_per_service | abgw: null          |
|                  | compute: null       |
|                  | iscsi: null         |
|                  | nfs: null           |
|                  | s3: null            |
| status          | healthy             |
| tiers           | - id: 0             |
|                  |   phys_space:      |
|                  |     free: 2164191700992 |
|                  |     total: 2164203036672 |
|                  |     used: 11335680   |
+-----+-----+

```

## 2.7.2 Showing Storage Cluster Details

### 2.7.2.1 Syntax

```
usage: vinfra cluster show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
```

```
Show cluster details
```

```
...
```

### 2.7.2.2 Sample Output

This command shows cluster details.

```

# vinfra cluster show
+-----+-----+
| Field | Value |
+-----+-----+
| id    | 1     |
| name  | stor1 |
| nodes | - host: stor-4.example.com.vstoragedomain |
|       | id: 4b83a87d-9adf-472c-91f0-782c47b2d5f1 |
|       | is_installing: false |
|       | is_releasing: false  |
|       | - host: stor-3.example.com.vstoragedomain |
|       | id: 7d7d37b8-4c06-4f1a-b3a6-4b54257d70ce |

```

```

|         | is_installing: false |
|         | is_releasing: false |
|         | - host: stor-5.example.com.vstoragedomain |
|         | id: fd1e46de-6e17-4571-bf6b-1ac34ec1c225 |
|         | is_installing: false |
|         | is_releasing: false |
|         | - host: stor-1.example.com.vstoragedomain |
|         | id: 94d58604-6f30-4339-8578-adb7903b7277 |
|         | is_installing: false |
|         | is_releasing: false |
|         | - host: stor-2.example.com.vstoragedomain |
|         | id: f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 |
|         | is_installing: false |
|         | is_releasing: false |
+-----+

```

## 2.8 Deleting Storage Cluster

### 2.8.1 Syntax

```
usage: vinfra cluster delete [-h] [--timeout <seconds>]
```

Delete the storage cluster.

optional arguments:

```

-h, --help            show this help message and exit
--timeout <seconds>  A timeout for the operation to complete, in seconds
                      (default: 600)

```

### 2.8.2 Sample Output

This command releases all nodes from the storage cluster.

```

# vinfra cluster delete
Operation waiting (timeout=600s) [Elapsed Time: 0:01:09] ... |
Operation successful

```

## CHAPTER 3

# Managing Compute Cluster

## 3.1 Creating Compute Cluster

### 3.1.1 Syntax

```
usage: vinfra service compute cluster create [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             [--public-network <network>]
                                             [--subnet cidr=CIDR[,key1=value1,key2=value2...]]
                                             [--force] --nodes <nodes>
```

Create compute cluster.

optional arguments:

-h, --help show this help message and exit

--public-network <network>

A physical network to connect the public virtual network to. It must include the 'VM public' traffic type.

--subnet cidr=CIDR[,key1=value1,key2=value2...]

Subnet for IP address management in the public virtual network (the --public-network option is required):

cidr: subnet range in CIDR notation;

gateway: gateway IP address (optional);

dhcp: enable/disable the virtual DHCP server (optional);

allocation-pool: allocation pool of IP addresses from CIDR in the format ip1-ip2, where ip1 and ip2 are starting and ending IP addresses correspondingly.

Specify the key multiple times to create multiple IP pools (optional);

dns-server: DNS server IP address, specify multiple

```

times to set multiple DNS servers (optional).
Example: --subnet cidr=192.168.5.0/24,dhcp=enable
--force          Skip checks for minimal hardware requirements.
--nodes <nodes> A comma-separated list of node IDs or hostnames
...

```

### 3.1.2 Sample Output

This command creates a task to create the compute cluster from five nodes specified by ID. It also specifies the virtual IP address (must belong to the network with the Compute API traffic type), the public network for VMs, the gateway, the allocation pool of IP addresses to assign to VMs, and the DNS servers to use.

```

# vinfra service compute cluster create --virtual-ip 10.94.50.244 \
--node 7ffa9540-5a20-41d1-b203-e3f349d62565,\
02ff64ae-5800-4090-b958-18b1fe8f5060,\
6e8afc28-7f71-4848-bdbe-7c5de64c5013,\
37c70bfb-c289-4794-8be4-b7a40c2b6d95,\
827a1f4e-56e5-404f-9113-88748c18f0c2 --enable-nested \
--public-network Public --subnet cidr=10.94.0.0/16,dhcp=enable,\
gateway=10.94.0.1,allocation-pool=10.94.129.64-10.94.129.79,\
dns-server=10.30.0.27,dns-server=10.30.0.28
+-----+-----+
| Field  | Value |
+-----+-----+
| task_id | be517afa-fae0-457e-819c-f4d6399f3ae2 |
+-----+-----+

```

Task outcome:

```

# vinfra task show be517afa-fae0-457e-819c-f4d6399f3ae2
+-----+-----+
| Field  | Value |
+-----+-----+
| args   | - admin |
| kwargs | enable_nested: true |
|        | external_network: |
|        |   roles_set_id: dd42723e-1318-4f8f-9a43-b303ab09cbbe |
|        |   subnet: |
|        |     allocation_pools: |
|        |       - end_address: 10.94.129.79 |
|        |       start_address: 10.94.129.64 |
|        |     cidr: 10.94.0.0/16 |
|        |     dns_servers: |
|        |       - 10.30.0.27 |
|        |       - 10.30.0.28 |
|        |     enable_dhcp: true |
|        |     gateway: 10.94.0.1 |
|        | nodes: |
|        |   - 7ffa9540-5a20-41d1-b203-e3f349d62565 |
+-----+-----+

```

```

|           | - 02ff64ae-5800-4090-b958-18b1fe8f5060 |
|           | - 6e8afc28-7f71-4848-bdbe-7c5de64c5013 |
|           | - 37c70bfb-c289-4794-8be4-b7a40c2b6d95 |
|           | - 827a1f4e-56e5-404f-9113-88748c18f0c2 |
| name      | backend.presentation.compute.tasks.DeployComputeClusterTask |
| progress  | 100 |
| state     | success |
| task_id   | be517afa-fae0-457e-819c-f4d6399f3ae2 |
+-----+-----+

```

## 3.2 Showing Compute Cluster Details and Overview

### 3.2.1 Showing Compute Cluster Details

#### 3.2.1.1 Syntax

```
usage: vinfra service compute cluster show [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN]
```

Display compute cluster details.

...

#### 3.2.1.2 Sample Output

This command shows the status and capabilities of the compute cluster.

```

# vinfra service compute cluster show
+-----+-----+
| Field      | Value |
+-----+-----+
| capabilities | cpu_models: |
|              | - SandyBridge |
|              | - IvyBridge |
|              | - Haswell |
|              | - Haswell-noTSX |
|              | - Broadwell |
|              | - Broadwell-noTSX |
|              | - Skylake-Client |
|              | - Skylake-Server |
|              | - HostPassthrough |
|              | os_distributions: |
|              | linux: |

```

```

|         | centos6: Centos 6           |
|         | centos7: Centos 7         |
|         | debian9: Debian 9 (Stretch) |
|         | linux: Generic Linux      |
|         | rhel7: Red Hat Enterprise Linux |
|         | ubuntu16.04: Ubuntu 16.04 LTS |
|         | ubuntu18.04: Ubuntu 18.04 LTS |
|         | windows:                  |
|         | win10: Microsoft Windows 10 |
|         | win2k12: Microsoft Windows Server 2012 |
|         | win2k12r2: Microsoft Windows Server 2012 R2 |
|         | win2k16: Microsoft Windows Server 2016 |
|         | win2k8r2: Microsoft Windows Server 2008 R2 |
|         | win7: Microsoft Windows 7  |
|         | win8.1: Microsoft Windows 8.1 |
|         | windows: Generic Windows   |
| options | cpu_model: null           |
| status  | active                   |
+-----+-----+

```

## 3.2.2 Showing Compute Cluster Overview

### 3.2.2.1 Syntax

```
usage: vinfra service compute cluster stat [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN]
```

Display compute cluster statistics

...

### 3.2.2.2 Sample Output

This command shows the overview of the compute cluster.

```

# vinfra service compute cluster stat
+-----+-----+
| Field  | Value |
+-----+-----+
| compute | block_capacity: 0 |
|         | block_usage: 0   |
|         | cpu_usage: 0.0   |
|         | mem_total: 0     |
|         | mem_usage: 0     |
|         | vcpus: 0         |
| datetime | 2018-09-11T15:50:18.758258 |
| physical | block_capacity: 1099511627776 |

```

```

|         | block_free: 1099498911464 |
|         | cpu_cores: 10              |
|         | mem_total: 41006247936    |
| reserved| cpus: 5                    |
|         | memory: 17721982976       |
| servers | count: 0                   |
|         | error: 0                   |
|         | in_progress: 0            |
|         | running: 0                 |
|         | stopped: 0                 |
|         | top:                       |
|         |   disk: []                 |
|         |   memory: []               |
|         |   vcpus: []                |
+-----+

```

## 3.3 Changing Compute Cluster Parameters

### 3.3.1 Syntax

```

usage: vinfra service compute cluster set [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>]
      [--cpu-model <cpu-model>]

```

Change compute cluster parameters

optional arguments:

```

-h, --help            show this help message and exit
--cpu-model <cpu-model>
                        Set the default CPU model for virtual machines
                        (SandyBridge, IvyBridge, Haswell, Haswell-noTSX,
                        Broadwell, Broadwell-noTSX, Skylake-Client, Skylake-
                        Server, HostPassthrough).

```

...

### 3.3.2 Sample Output

This command sets the default CPU model for VMs to Haswell.

```

# vinfra service compute cluster set --cpu-model Haswell

```

## 3.4 Managing Compute Nodes

### 3.4.1 Adding Nodes to Compute Cluster

#### 3.4.1.1 Syntax

```
usage: vinfra service compute node add [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--wait]
                                         [--timeout <seconds>] --nodes <nodes>
                                         [--force]
```

Add a node to the compute cluster.

optional arguments:

```
-h, --help            show this help message and exit
--nodes <nodes>      A comma-separated list of node IDs or hostnames
--force              Skip checks for minimal hardware requirements.
```

...

#### 3.4.1.2 Sample Output

This command creates a task to add the node with the ID 827a1f4e-56e5-404f-9113-88748c18f0c2 to the compute cluster.

```
# vinfra service compute node add --node 827a1f4e-56e5-404f-9113-88748c18f0c2
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 4c58e63c-31b6-406a-8070-9197445ec794 |
+-----+-----+
```

Task outcome:

```
# vinfra task show 4c58e63c-31b6-406a-8070-9197445ec794
+-----+-----+
| Field | Value |
+-----+-----+
| args | [] |
| kwargs | nodes: |
| | - 827a1f4e-56e5-404f-9113-88748c18f0c2 |
| name | backend.presentation.compute.tasks.ComputeClusterAddNodesTask |
| progress | 100 |
| state | success |
| task_id | 4c58e63c-31b6-406a-8070-9197445ec794 |
+-----+-----+
```



## 3.4.2 Listing Nodes in Compute Cluster

### 3.4.2.1 Syntax

```
usage: vinfra service compute node list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]
```

List compute nodes.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 3.4.2.2 Sample Output

This command lists nodes in the compute cluster.

```
# vinfra service compute node list
```

id	hypervisor_hostname	state	vms
7ffa9540-5a20-41d1-b203-e3f349d62565	stor-1.example.com.vstoragedomain	up	1
6e8afc28-7f71-4848-bdbe-7c5de64c5013	stor-3.example.com.vstoragedomain	up	1
02ff64ae-5800-4090-b958-18b1fe8f5060	stor-2.example.com.vstoragedomain	up	1
827a1f4e-56e5-404f-9113-88748c18f0c2	stor-5.example.com.vstoragedomain	up	0
37c70bfb-c289-4794-8be4-b7a40c2b6d95	stor-4.example.com.vstoragedomain	up	1

## 3.4.3 Showing Compute Node Details

### 3.4.3.1 Syntax

```
usage: vinfra service compute node show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <node>
```

Display compute node details.

positional arguments:

<node> Node ID or hostname

...

### 3.4.3.2 Sample Output

This command shows the details of the compute node with the ID 7ffa9540-5a20-41d1-b203-e3f349d62565.

```
# vinfra service compute node show 7ffa9540-5a20-41d1-b203-e3f349d62565
+-----+
| Field          | Value                                     |
+-----+
| host_ip        | 10.37.130.101                           |
| hypervisor_hostname | stor-1.example.com.vstoragedomain      |
| hypervisor_id  | 1                                         |
| id             | 7ffa9540-5a20-41d1-b203-e3f349d62565   |
| state          | up                                       |
| statistics     | compute:                                 |
|                |   block_capacity: 0                     |
|                |   block_usage: 0                        |
|                |   cpu_usage: 0                          |
|                |   mem_total: 0                          |
|                |   mem_usage: 0                          |
|                |   vcpus: 0                              |
|                |   datetime: '2018-09-11T16:39:15.290999+00:00' |
|                |   physical:                             |
|                |     cpu_cores: 2                        |
|                |     mem_free: 414105600                  |
|                |     mem_total: 8201244672                |
|                |   reserved:                             |
|                |     cpus: 1                             |
|                |     memory: 5773                         |
| vms           | 0                                       |
+-----+
```

## 3.4.4 Fencing Compute Nodes

### 3.4.4.1 Syntax

```
usage: vinfra service compute node fence [-h] <node>

Fence a compute node.

positional arguments:
  <node>      Node ID or hostname
  ...
```

### 3.4.4.2 Sample Output

This command fences the node with the ID e6255aed-d6e7-41b2-ba90-86164c1cd9a6.

```
# vinfra service compute node fence e6255aed-d6e7-41b2-ba90-86164c1cd9a6
Operation successful
```

## 3.4.5 Unfencing Compute Nodes

```
usage: vinfra service compute node unfence [-h] <node>
```

Unfence a compute node.

positional arguments:

<node> Node ID or hostname

...

### 3.4.5.1 Sample Output

This command unfences the node with the ID e6255aed-d6e7-41b2-ba90-86164c1cd9a6.

```
# vinfra service compute node unfence e6255aed-d6e7-41b2-ba90-86164c1cd9a6
Operation successful
```

## 3.4.6 Releasing Nodes from Compute Cluster

### 3.4.6.1 Syntax

```
usage: vinfra service compute node release [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>] --nodes
      <nodes>
```

Release a node from the compute cluster.

optional arguments:

-h, --help show this help message and exit  
 --nodes <nodes> A comma-separated list of node IDs or hostnames

...

### 3.4.6.2 Sample Output

This command creates a task to release the node with the ID 827a1f4e-56e5-404f-9113-88748c18f0c2 from the compute cluster.

```
# vinfra service compute node release --node 827a1f4e-56e5-404f-9113-88748c18f0c2
+-----+-----+
| Field  | Value |
+-----+-----+
| task_id | 3b39738c-80a6-40a6-a50d-c3c8118ed212 |
+-----+-----+
```

Task outcome:

```
# vinfra task show 3b39738c-80a6-40a6-a50d-c3c8118ed212
+-----+-----+
| Field  | Value |
+-----+-----+
| args    | []    |
| kwargs  | nodes: |
|         | - 827a1f4e-56e5-404f-9113-88748c18f0c2 |
| name    | backend.presentation.compute.tasks.ComputeClusterDeleteNodesTask |
| state   | success |
| task_id | 3b39738c-80a6-40a6-a50d-c3c8118ed212 |
+-----+-----+
```

## 3.5 Managing Networks

### 3.5.1 Creating Compute Networks

#### 3.5.1.1 Syntax

```
usage: vinfra service compute network create [-h] [-f {json,table,value,yaml}]
[-c COLUMN] [--wait]
[--timeout <seconds>]
[--dhcp | --no-dhcp]
[--dns-nameserver <dns-nameserver>]
[--allocation-pool <allocation-pool>]
[--gateway <gateway> | --no-gateway]
[--ip-version <ip-version>]
[--type {vxlan,flat}]
[--physical-network <physical-network>]
[--cidr <cidr>]
<network-name>
```

Create a compute network.

positional arguments:

<network-name> Network name

optional arguments:

-h, --help show this help message and exit  
 --dhcp Enable DHCP  
 --no-dhcp Disable DHCP  
 --dns-nameserver <dns-nameserver>  
 DNS server IP address. This option can be used  
 multiple times.  
 --allocation-pool <allocation-pool>  
 Allocation pool to create inside the network in the  
 format: ip\_addr\_start-ip\_addr\_end. This option can be  
 used multiple times.  
 --gateway <gateway> Gateway IP address.  
 --no-gateway Do not configure a gateway for this network  
 --ip-version <ip-version>  
 Network IP version  
 --type {vxlan,flat} Virtual network type ('vxlan' is private and 'flat' is  
 public)  
 --physical-network <physical-network>  
 A physical network to link to a flat network  
 --cidr <cidr> Subnet range in CIDR notation

output formatters:

output formatter options

-f {json,table,value,yaml}, --format {json,table,value,yaml}  
 the output format, defaults to table  
 -c COLUMN, --column COLUMN

...

### 3.5.1.2 Sample Output

This command creates a private network `myprivnet` with the specific CIDR and gateway.

```
# vnfra service compute network create myprivnet --type vxlan \
--cidr 192.128.128.0/24 --gateway 192.128.128.1
+-----+
| Field          | Value                                     |
+-----+
| id             | 3848fb5d-bc98-4320-acd0-cde2df7c5bdd    |
| name           | myprivnet                               |
| physical_network |                                           |
| project_id     | 72a5db3a033c403a86756021e601ef34      |
| subnet         | allocation_pools:                       |
|                | - end: 192.128.128.254                 |
|                | start: 192.128.128.2                   |
|                |                                           |
```

```

|           | cidr: 192.128.128.0/24 |
|           | dns_nameservers: []   |
|           | enable_dhcp: true     |
|           | gateway_ip: 192.128.128.1 |
|           | ip_version: 4         |
| type     | vxlan                  |
+-----+-----+

```

## 3.5.2 Listing Compute Networks

### 3.5.2.1 Syntax

```
usage: vinfra service compute network list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]
```

List compute networks.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 3.5.2.2 Sample Output

This command lists networks used in the compute cluster. (The output is abridged to fit on page.)

```

# vinfra service compute network list -c id -c name -c cidr -c type -c allocation_pools
+-----+-----+-----+-----+-----+
| id          | name      | type  | cidr          | allocation_pools |
+-----+-----+-----+-----+-----+
| 1bf2c9da-<...> | private  | vxlan | 192.168.128.0/24 | - end: 192.168.128.254 |
|               |          |       |                 | start: 192.168.128.2 |
| 3848fb5d-<...> | myprivnet | vxlan | 192.128.128.0/24 | - end: 192.128.128.254 |
|               |          |       |                 | start: 192.128.128.2 |
| 417606ac-<...> | public   | flat  | 10.94.0.0/16   | - end: 10.94.129.79 |
|               |          |       |                 | start: 10.94.129.64 |
+-----+-----+-----+-----+-----+

```

## 3.5.3 Showing Compute Network Details

### 3.5.3.1 Syntax

```
usage: vinfra service compute network show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <network>
```

Display compute network details.

```
positional arguments:
  <network>          Network ID or name
  ...
```

### 3.5.3.2 Sample Output

This command shows the details of the network with the ID 417606ac-1dbe-426a-844d-e047831ddce9.

```
# vinfra service compute network show 417606ac-1dbe-426a-844d-e047831ddce9
+-----+-----+
| Field          | Value                                     |
+-----+-----+
| allocation_pools |                                           |
| cidr           |                                           |
| dns_nameservers |                                           |
| enable_dhcp    |                                           |
| gateway_ip     |                                           |
| id             | 417606ac-1dbe-426a-844d-e047831ddce9 |
| ip_version     |                                           |
| name           | public                                   |
| physical_network | Public                                   |
| project_id     | 72a5db3a033c403a86756021e601ef34     |
| type           | flat                                     |
+-----+-----+
```

## 3.5.4 Changing Compute Network Parameters

### 3.5.4.1 Syntax

```
usage: vinfra service compute network set [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--dhcp | --no-dhcp]
      [--dns-nameserver <dns-nameserver>]
      [--allocation-pool <allocation-pool>]
      [--gateway <gateway> | --no-gateway]
      [--name <name>]
```

```
<network>
```

Modify compute network parameters.

positional arguments:

```
<network>      Network ID or name
```

optional arguments:

```
-h, --help      show this help message and exit
--dhcp          Enable DHCP
--no-dhcp       Disable DHCP
--dns-nameserver <dns-nameserver>
                DNS server IP address. This option can be used
                multiple times.
--allocation-pool <allocation-pool>
                Allocation pool to create inside the network in the
                format: ip_addr_start-ip_addr_end. This option can be
                used multiple times.
--gateway <gateway> Gateway IP address.
--no-gateway    Do not configure a gateway for this network
--name <name>   A new name for the network
```

```
...
```

### 3.5.4.2 Sample Output

This command disables DHCP for the private network `myprivnet`.

```
# vinfra service compute network set myprivnet --no-dhcp
+-----+-----+
| Field          | Value                                     |
+-----+-----+
| id             | 3848fb5d-bc98-4320-acd0-cde2df7c5bdd    |
| name           | myprivnet                               |
| physical_network |                                           |
| project_id     | 72a5db3a033c403a86756021e601ef34      |
| subnet         | allocation_pools:                       |
|                | - end: 192.128.128.254                 |
|                |   start: 192.128.128.2                 |
|                | cidr: 192.128.128.0/24                 |
|                | dns_nameservers: []                    |
|                | enable_dhcp: false                     |
|                | gateway_ip: 192.128.128.1              |
|                | ip_version: 4                           |
| type           | vxlan                                    |
+-----+-----+
```



## 3.5.5 Deleting Compute Networks

### 3.5.5.1 Syntax

```
usage: vinfra service compute network delete [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             <network>
```

Delete a compute network.

positional arguments:

<network> Network ID or name

optional arguments:

-h, --help show this help message and exit

output formatters:

output formatter options

-f {json,table,value,yaml}, --format {json,table,value,yaml}
the output format, defaults to table

-c COLUMN, --column COLUMN
specify the column(s) to include, can be repeated

command run options:

additional command options

...

### 3.5.5.2 Sample Output

This command deletes the private network `myprivnet`.

```
# vinfra service compute network delete myprivnet
Operation successful
```

## 3.6 Managing Images

### 3.6.1 Creating Images

#### 3.6.1.1 Syntax

```
usage: vinfra service compute image create [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN] [--wait]
                                           [--timeout <seconds>]
                                           [--min-disk <size-gb>]
                                           [--min-ram <size-mb>]
                                           [--os-distro <os-distro>]
                                           [--protected]
                                           [--disk-format <disk_format>]
                                           [--container-format <format>]
                                           --file <file>
                                           <image-name>
```

Create a new compute image.

positional arguments:

<image-name>            Image name

optional arguments:

-h, --help            show this help message and exit

--min-disk <size-gb> Minimum disk size required to boot from image, in gigabytes

--min-ram <size-mb> Minimum RAM size required to boot from image, in megabytes

--os-distro <os-distro>  
OS distribution. To list available distributions, run 'service compute cluster show'.

--protected           Protect image from deletion.

--disk-format <disk\_format>  
Disk format aki,ami,ari,detect,iso,ploop,qcow2,raw,vdi,vhd,vhdx,vmdk (default: detect)

--container-format <format>  
Container format: aki,ami,ari,bare,docker,ovf,ova (default: bare)

--file <file>        Create image from a local file

...

### 3.6.1.2 Sample Output

This command creates a task to create a Cirros image from the local file and upload it to Acronis Software-Defined Infrastructure.

```
# vinfra service compute image create mycirrosimg \
--file /distr/cirros-0.4.0-x86_64-disk.img
Uploading image to server [elapsed time: 0:00:04]... |
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 03874663-d03f-4891-a10b-64837e7faf43 |
+-----+-----+
```

Task outcome:

```
# vinfra task show 03874663-d03f-4891-a10b-64837e7faf43
+-----+-----+-----+-----+-----+
| Field  | Value                                                                 |
+-----+-----+-----+-----+-----+
| details |
| name    | backend.presentation.compute.images.tasks.ImportComputeImageTask |
| result  | id: 179f45ef-c5d6-4270-b0c0-085b542544c5 |
| state   | success |
| task_id | 03874663-d03f-4891-a10b-64837e7faf43 |
+-----+-----+-----+-----+-----+
```

## 3.6.2 Listing Images

### 3.6.2.1 Syntax

```
usage: vinfra service compute image list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]

List compute images.

optional arguments:
  -h, --help            show this help message and exit

output formatters:
  ...
```

### 3.6.2.2 Sample Output

This command lists images available to the compute cluster.

```
# vinfra service compute image list
+-----+-----+-----+-----+-----+
| id                | name          | size  | status | disk_format |
+-----+-----+-----+-----+-----+
| 179f45ef-c5d6-4270-b0c0-085b542544c5 | mycirrosimg  | 12716032 | active | qcow2       |
| 4741274f-5cca-4205-8f66-a2e89fb346cc | cirros       | 12716032 | active | qcow2       |
+-----+-----+-----+-----+-----+
```

## 3.6.3 Showing Image Details

### 3.6.3.1 Syntax

```
usage: vinfra service compute image show [-h] [-f {json,table,value,yaml}]
                                          [-c COLUMN]
                                          <image>
```

Display compute image details.

positional arguments:

<image>                    Image ID or name

...

### 3.6.3.2 Sample Output

This command shows the details of the default Cirros image.

```
# vinfra service compute image show 4741274f-5cca-4205-8f66-a2e89fb346cc
+-----+-----+
| Field          | Value                                     |
+-----+-----+
| checksum       | 443b7623e27ecf03dc9e01ee93f67afe       |
| container_format | bare                                     |
| created_at     | 2018-09-11T13:29:10Z                   |
| disk_format    | qcow2                                    |
| file           | /api/v2/compute/images/4741274f-5cca-4205-8f66-a2e89fb346cc/file/ |
| id             | 4741274f-5cca-4205-8f66-a2e89fb346cc   |
| min_disk       | 1                                        |
| min_ram        | 0                                        |
| name           | cirros                                   |
| os_distro      | linux                                    |
| os_type        | linux                                    |
| project_id     | 72a5db3a033c403a86756021e601ef34      |
| protected      | False                                    |
| size           | 12716032                                 |
| status         | active                                    |
| tags           | []                                       |
| updated_at     | 2018-09-11T13:29:13Z                   |
| virtual_size   |                                           |
| visibility     | public                                    |
+-----+-----+
```

## 3.6.4 Changing Image Parameters

### 3.6.4.1 Syntax

```
usage: vinfra service compute image set [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--min-disk <size-gb>]
      [--min-ram <size-mb>]
      [--os-distro <os-distro>]
      [--protected] [--name <name>]
      <image>
```

Modify compute image parameters.

positional arguments:

<image> Image ID or name

optional arguments:

-h, --help show this help message and exit

--min-disk <size-gb> Minimum disk size required to boot from image, in gigabytes

--min-ram <size-mb> Minimum RAM size required to boot from image, in megabytes

--os-distro <os-distro> OS distribution. To list available distributions, run 'service compute cluster show'.

--protected Protect image from deletion.

--name <name> Image name

...

### 3.6.4.2 Sample Output

This command protects the default Cirros image and sets the minimum RAM size for it to 1 GB.

```
# vinfra service compute image set 4741274f-5cca-4205-8f66-a2e89fb346cc --protected --min-ram 1
+-----+-----+
| Field          | Value                                     |
+-----+-----+
| checksum       | 443b7623e27ecf03dc9e01ee93f67afe       |
| container_format | bare                                     |
| created_at     | 2018-09-11T13:29:10Z                    |
| disk_format    | qcow2                                    |
| file           | /api/v2/compute/images/4741274f-5cca-4205-8f66-a2e89fb346cc/file/ |
| id             | 4741274f-5cca-4205-8f66-a2e89fb346cc    |
| min_disk       | 1                                         |
| min_ram        | 1                                         |
| name           | cirros                                    |
| os_distro      | linux                                     |
| os_type        | linux                                     |
+-----+-----+
```

```

| project_id      | 72a5db3a033c403a86756021e601ef34 |
| protected      | True                               |
| size           | 12716032                           |
| status         | active                             |
| tags           | []                                  |
| updated_at     | 2018-09-12T09:26:29Z              |
| virtual_size   |                                     |
| visibility     | public                             |
+-----+-----+

```

## 3.6.5 Downloading Images

### 3.6.5.1 Syntax

```
usage: vinfra service compute image save [-h] [--file <filename>] <image>
```

Download a compute image.

positional arguments:

<image> Image ID or name

optional arguments:

-h, --help show this help message and exit  
 --file <filename> File to save the image to (default: stdout)

### 3.6.5.2 Sample Output

This command downloads the default Cirros image to the local disk as cirros.qcow2.

```
# vinfra service compute image save 4741274f-5cca-4205-8f66-a2e89fb346cc --file cirros.qcow2
Operation successful
```

## 3.6.6 Deleting Images

### 3.6.6.1 Syntax

```
usage: vinfra service compute image delete [-h] <image>
```

Delete a compute image.

positional arguments:

<image> Image ID or name

...

### 3.6.6.2 Sample Output

This command deletes the image with the ID 179f45ef-c5d6-4270-b0c0-085b542544c5.

```
# vinfra service compute image delete 179f45ef-c5d6-4270-b0c0-085b542544c5
Operation successful
```

## 3.7 Managing Flavors

### 3.7.1 Creating Flavors

#### 3.7.1.1 Syntax

```
usage: vinfra service compute flavor create [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--swap <size-mb>]
      --vcpus <vcpus> --ram <size-mb>
      <flavor-name>
```

Create a new compute flavor.

positional arguments:

<flavor-name> Flavor name

optional arguments:

-h, --help show this help message and exit  
 --swap <size-mb> Swap space size, in megabytes  
 --vcpus <vcpus> Number of virtual CPUs  
 --ram <size-mb> Memory size, in megabytes

...

#### 3.7.1.2 Sample Output

This command creates a flavor myflavor with 1 vCPU and 3 GB RAM.

```
# vinfra service compute flavor create myflavor --vcpus 1 --ram 3072
+-----+-----+
| Field | Value |
+-----+-----+
| id    | 561a48ea-0c1c-4152-8b7d-e4b4af276c2d |
| name  | myflavor |
| ram   | 3072 |
| swap  | 0 |
```

```
| vcpus | 1 |
+-----+
```

### 3.7.2 Listing Flavors

#### 3.7.2.1 Syntax

```
usage: vinfra service compute flavor list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]

List compute flavors.

optional arguments:
  -h, --help            show this help message and exit

output formatters:
  ...
```

#### 3.7.2.2 Sample Output

This command lists all flavors.

```
# vinfra service compute flavor list
+-----+-----+-----+-----+-----+
| id          | name    | ram  | swap | vcpus |
+-----+-----+-----+-----+-----+
| 100         | tiny    | 512  | 0    | 1     |
| 101         | small   | 2048 | 0    | 1     |
| 102         | medium  | 4096 | 0    | 2     |
| 103         | large   | 8192 | 0    | 4     |
| 104         | xlarge  | 16384| 0    | 8     |
| 561a48ea-0c1c-4152-8b7d-e4b4af276c2d | myflavor | 3072 | 0    | 1     |
+-----+-----+-----+-----+-----+
```

### 3.7.3 Showing Flavor Details

#### 3.7.3.1 Syntax

```
usage: vinfra service compute flavor show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <flavor>

Display compute flavor details.
```



```
positional arguments:
  <flavor>          Flavor ID or name
  ...
```

### 3.7.3.2 Sample Output

This command shows the details of the flavor `myflavor`.

```
# vinfra service compute flavor show myflavor
+-----+-----+
| Field | Value |
+-----+-----+
| id    | 561a48ea-0c1c-4152-8b7d-e4b4af276c2d |
| name  | myflavor |
| ram   | 3072 |
| swap  | 0 |
| vcpus | 1 |
+-----+-----+
```

## 3.7.4 Deleting Flavors

### 3.7.4.1 Syntax

```
usage: vinfra service compute flavor delete [-h] <flavor>

Delete a compute flavor.

positional arguments:
  <flavor>          Flavor ID or name
  ...
```

### 3.7.4.2 Sample Output

This command deletes the flavor `myflavor`.

```
# vinfra service compute flavor delete myflavor
Operation successful
```

## 3.8 Managing Storage Policies

You can manage storage policies only after creating the compute cluster.

### 3.8.1 Creating Storage Policies

#### 3.8.1.1 Syntax

```
usage: vinfra cluster storage-policy create [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN] --tier {0,1,2,3}
                                           (--replicas <norm>[:<min>] | --encoding <M>+<N>)
                                           --failure-domain
                                           {disk,host,rack,row,room}
                                           <name>
```

Create a new storage policy.

positional arguments:

<name> Storage policy name

optional arguments:

```
-h, --help show this help message and exit
--tier {0,1,2,3} Storage tier
--replicas <norm>[:<min>]
Storage replication mapping in the format:
norm: the number of replicas to maintain;
min: the minimum required number of replicas
(optional).
--encoding <M>+<N> Storage erasure encoding mapping in the format:
M: the number of data blocks;
N: the number of parity blocks.
--failure-domain {disk,host,rack,row,room}
Storage failure domain
```

...

#### 3.8.1.2 Sample Output

This command creates a storage policy `mystorpolicy` with the tier set to 3, redundancy scheme to erasure coding 3+2, and failure domain set to host.

```
# vinfra cluster storage-policy create mystorpolicy --tier 3 \
--encoding 3+2 --failure-domain host
+-----+
| Field          | Value          |
```

```
+-----+
| failure_domain | host |
| id             | 2199e71e-ce8a-4ba9-81cd-75502f0344ca |
| name          | mystorpolicy |
| redundancy    | encoding=3+2 |
| tier           | 3 |
+-----+
```

## 3.8.2 Listing Storage Policies

### 3.8.2.1 Syntax

```
usage: vinfra cluster storage-policy list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]
```

List existing storage policies.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 3.8.2.2 Sample Output

This command lists storage policies available to the compute cluster.

```
# vinfra cluster storage-policy list
+-----+-----+-----+-----+-----+
| id          | name          | tier | redundancy | failure_domain |
+-----+-----+-----+-----+-----+
| 2199e71e-<...> | mystorpolicy | 3 | encoding=3+2 | host |
| 4274d6fd-<...> | default      | 0 | replicas=3   | host |
+-----+-----+-----+-----+-----+
```

## 3.8.3 Showing Storage Policy Details

### 3.8.3.1 Syntax

```
usage: vinfra cluster storage-policy show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <storage-policy>
```

Show details of a storage policy.

```
positional arguments:
  <storage-policy>      Storage policy ID or name
  ...
```

### 3.8.3.2 Sample Output

This command shows the details of the storage policy `mystorpolicy`.

```
# vinfra cluster storage-policy show mystorpolicy
+-----+-----+
| Field          | Value                               |
+-----+-----+
| failure_domain | host                                 |
| id              | 2199e71e-ce8a-4ba9-81cd-75502f0344ca |
| name            | mystorpolicy                         |
| redundancy      | encoding=3+2                         |
| tier             | 3                                     |
+-----+-----+
```

## 3.8.4 Changing Storage Policy Parameters

### 3.8.4.1 Syntax

```
usage: vinfra cluster storage-policy set [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] [--name <name>]
                                         [--tier {0,1,2,3}]
                                         [--replicas <norm>[:<min>] |
                                         --encoding <M>+<N>]
                                         [--failure-domain {disk,host,rack,row,room}]
                                         <storage-policy>
```

Modify storage policy parameters.

```
positional arguments:
  <storage-policy>      Storage policy ID or name

optional arguments:
  -h, --help            show this help message and exit
  --name <name>        A new name for the storage policy
  --tier {0,1,2,3}     Storage tier
  --replicas <norm>[:<min>]
                        Storage replication mapping in the format:
                        norm: the number of replicas to maintain;
                        min: the minimum required number of replicas
```

```

      (optional).
--encoding <M>+<N>  Storage erasure encoding mapping in the format:
                    M: the number of data blocks;
                    N: the number of parity blocks.
--failure-domain {disk,host,rack,row,room}
                    Storage failure domain
...

```

### 3.8.4.2 Sample Output

This command changes the redundancy type for the storage policy `mystorpolicy` from erasure coding 3+2 to 5+2.

```

# vinfra cluster storage-policy set mystorpolicy --encoding 5+2
+-----+-----+
| Field          | Value                               |
+-----+-----+
| failure_domain | host                                 |
| id             | 2199e71e-ce8a-4ba9-81cd-75502f0344ca |
| name           | mystorpolicy                         |
| redundancy     | encoding=5+2                         |
| tier            | 3                                     |
+-----+-----+

```

## 3.8.5 Deleting Storage Policies

The default policy cannot be deleted.

### 3.8.5.1 Syntax

```

usage: vinfra cluster storage-policy delete [-h] <storage-policy>

Remove an existing storage policy.

positional arguments:
  <storage-policy>  Storage policy ID or name
...

```

### 3.8.5.2 Sample Output

This command deletes the storage policy `mystorpolicy`.

```
# vinfra cluster storage-policy delete mystorpolicy
Operation successful
```

## 3.9 Managing Volumes

### 3.9.1 Creating Volumes

#### 3.9.1.1 Syntax

```
usage: vinfra service compute volume create [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             [--description <description>]
                                             [--network-install <network_install>]
                                             [--image <image>] --storage-policy
                                             <storage_policy> --size <size-gb>
                                             <volume-name>
```

Create a new compute volume.

positional arguments:

<volume-name>           Volume name

optional arguments:

-h, --help                show this help message and exit  
 --description <description>  
                           Volume description  
 --network-install <network\_install>  
                           Perform network install ('true' or 'false').  
 --image <image>           Source compute image ID or name  
 --storage-policy <storage\_policy>  
                           Storage policy ID or name  
 --size <size-gb>         Volume size, in gigabytes

...

### 3.9.1.2 Sample Output

This command creates a volume `myvolume` sized 8 GB and chooses the default storage policy for it.

```
# vinfra service compute volume create myvolume --storage-policy default --size 8
+-----+-----+
| Field          | Value                                |
+-----+-----+
| attachments    | []                                    |
| availability_zone | nova                                  |
| bootable       | False                                 |
| consistencygroup_id |                                       |
| created_at     | 2018-09-12T12:30:12.665916          |
| description    |                                       |
| encrypted      | False                                 |
| id             | c9c0e9e7-ce7a-4566-99d5-d7e40f2987ab |
| imageRef      |                                       |
| migration_status |                                       |
| multiattach    | False                                 |
| name           | myvolume                             |
| network_install | False                                 |
| os-vol-host-attr:host |                                       |
| os-vol-mig-status-attr:migstat |                                       |
| os-vol-mig-status-attr:name_id |                                       |
| project_id     | 72a5db3a033c403a86756021e601ef34    |
| replication_status |                                       |
| size           | 8                                     |
| snapshot_id    |                                       |
| source_volid   |                                       |
| status         | creating                              |
| storage_policy_name | default                               |
| updated_at     |                                       |
| user_id       | 98bf389983c24c07af9677b931783143    |
| volume_image_metadata |                                       |
+-----+-----+
```

## 3.9.2 Listing Volumes

### 3.9.2.1 Syntax

```
usage: vinfra service compute volume list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]

List compute volumes.

optional arguments:
  -h, --help            show this help message and exit
```

```
output formatters:
...
```

### 3.9.2.2 Sample Output

This command lists volumes available to the compute cluster. (The output is abridged to fit on page.)

```
# vinfra service compute volume list -c id -c name -c size -c status
+-----+-----+-----+-----+
| id          | name          | size | status |
+-----+-----+-----+-----+
| c9c0e9e7-ce7a-4566-99d5-d7e40f2987ab | myvolume     | 8    | available |
+-----+-----+-----+-----+
```

## 3.9.3 Showing Volume Details

### 3.9.3.1 Syntax

```
usage: vinfra service compute volume show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <volume>
```

Display compute volume details.

positional arguments:

<volume>                    Volume ID or name

...

### 3.9.3.2 Sample Output

This command shows the details for the volume `myvolume`.

```
# vinfra service compute volume show myvolume
+-----+-----+
| Field          | Value          |
+-----+-----+
| attachments    | []             |
| availability_zone | nova          |
| bootable       | False         |
| consistencygroup_id |              |
| created_at     | 2018-09-12T12:30:12.665916 |
| description    |               |
| encrypted      | False         |
| id             | c9c0e9e7-ce7a-4566-99d5-d7e40f2987ab |
+-----+-----+
```



```

| imageRef | |
| migration_status | |
| multiattach | False |
| name | myvolume |
| network_install | False |
| os-vol-host-attr:host | stor-1.example.com.vstoragedomain@vstorage#vstorage |
| os-vol-mig-status-attr:migstat | |
| os-vol-mig-status-attr:name_id | |
| project_id | 72a5db3a033c403a86756021e601ef34 |
| replication_status | |
| size | 8 |
| snapshot_id | |
| source_volid | |
| status | available |
| storage_policy_name | default |
| updated_at | 2018-09-12T12:30:33.167654 |
| user_id | 98bf389983c24c07af9677b931783143 |
| volume_image_metadata | |
+-----+-----+

```

## 3.9.4 Changing Volume Parameters

### 3.9.4.1 Syntax

```

usage: vinfra service compute volume set [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN]
                                         [--description <description>]
                                         [--network-install <network_install>]
                                         [--storage-policy <storage_policy>]
                                         [--bootable <bootable>]
                                         [--name <name>]
                                         <volume>

```

Modify volume parameters

positional arguments:

<volume>                   Volume ID or name

optional arguments:

-h, --help                   show this help message and exit

--description <description>                   Volume description

--network-install <network\_install>           Perform network install ('true' or 'false').

--storage-policy <storage\_policy>           Storage policy ID or name

--bootable <bootable>                   Make bootable ('true' or 'false').

--name <name>                   A new name for the volume

...

### 3.9.4.2 Sample Output

This command changes the storage policy of the volume myvolume to mystorpolicy.

```
# vinfra service compute volume set myvolume --storage-policy mystorpolicy
```

Field	Value
attachments	[]
availability_zone	nova
bootable	False
consistencygroup_id	
created_at	2018-09-12T12:30:12.665916
description	
encrypted	False
id	c9c0e9e7-ce7a-4566-99d5-d7e40f2987ab
imageRef	
migration_status	
multiattach	False
name	myvolume
network_install	False
os-vol-host-attr:host	stor-1.example.com.vstoragedomain@vstorage#vstorage
os-vol-mig-status-attr:migstat	
os-vol-mig-status-attr:name_id	
project_id	72a5db3a033c403a86756021e601ef34
replication_status	
size	8
snapshot_id	
source_volid	
status	available
storage_policy_name	mystorpolicy
updated_at	2018-09-12T12:55:29.298717
user_id	98bf389983c24c07af9677b931783143
volume_image_metadata	

## 3.9.5 Extending Volumes

### 3.9.5.1 Syntax

```
usage: vinfra service compute volume extend [-h] --size <size_gb> <volume>
```

Extend a compute volume.

```
positional arguments:
  <volume>          Volume ID or name

optional arguments:
  -h, --help          show this help message and exit
  --size <size_gb>   Size to extend to
```

### 3.9.5.2 Sample Output

This command extends the volume `myvolume` to 16 GB.

```
# vinfra service compute volume extend myvolume --size 16
Operation successful
```

## 3.9.6 Attaching Volumes to Virtual Machines

### 3.9.6.1 Syntax

```
usage: vinfra service compute server volume attach [-h]
                                                [-f {json,table,value,yaml}]
                                                [-c COLUMN] --server
                                                <server>
                                                <volume>
```

Attach a volume to a compute server.

```
positional arguments:
  <volume>          Volume ID or name

optional arguments:
  -h, --help          show this help message and exit
  --server <server>   Compute server ID or name
  ...
```

### 3.9.6.2 Sample Output

This command attaches the available volume with the ID `e4cb5363-1fb2-41f5-b24b-18f98a388cba` to the VM with the ID `871fef54-519b-4111-b18d-d2039e2410a8`.

```
# vinfra service compute server volume attach e4cb5363-1fb2-41f5-b24b-18f98a388cba \
--server 871fef54-519b-4111-b18d-d2039e2410a8
+-----+
| Field | Value |
+-----+
+-----+
+-----+
```

```
| device | /dev/vdb |
| id     | e4cb5363-1fb2-41f5-b24b-18f98a388cba |
+-----+-----+
```

## 3.9.7 Detaching Volumes from Virtual Machines

### 3.9.7.1 Syntax

```
usage: vinfra service compute server volume detach [-h] --server <server>
                                                <volume>
```

Detach a volume from a compute server.

positional arguments:

```
<volume>          Volume ID or name
```

optional arguments:

```
-h, --help          show this help message and exit
--server <server>  Compute server ID or name
```

### 3.9.7.2 Sample Output

This command detaches the volume with the ID e4cb5363-1fb2-41f5-b24b-18f98a388cba from the VM with the ID 871fef54-519b-4111-b18d-d2039e2410a8.

```
# vinfra service compute server volume detach e4cb5363-1fb2-41f5-b24b-18f98a388cba \
--server 871fef54-519b-4111-b18d-d2039e2410a8
Operation successful
```

## 3.9.8 Deleting Volumes

### 3.9.8.1 Syntax

```
usage: vinfra service compute volume delete [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             <volume>
```

Delete a compute volume.

positional arguments:

```
<volume>           Volume ID or name
...
```

### 3.9.8.2 Sample Output

This command deletes the volume `myvolume2`.

```
# vinfra service compute volume delete myvolume2
Operation successful
```

## 3.10 Managing Virtual Machines

### 3.10.1 Creating Virtual Machines

#### 3.10.1.1 Syntax

```
usage: vinfra service compute server create [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             [--description <description>]
                                             [--metadata <metadata>]
                                             [--user-data <user-data>]
                                             [--key-name <key-name>]
                                             [--config-drive] [--count <count>]
                                             --network
                                             <id=id[,mac=mac,fixed-ip=ip-addr,spoofing-protection=on]
                                             --volume
                                             <source=source[,id=id,key1=value1,key2=value2...]>
                                             --flavor <flavor>
                                             <server-name>
```

Create a new compute server.

positional arguments:

<server-name>            A new name for the compute server

optional arguments:

-h, --help                show this help message and exit

--description <description>  
                          Server description

--metadata <metadata>  
                          Server metadata

--user-data <user-data>  
                          User data file

```

--key-name <key-name>      Key pair to inject
--config-drive             Use an ephemeral drive
--count <count>           If count is specified and greater than 1, the 'name'
                           argument is treated as a naming pattern.
--network <id=id[,mac=mac,fixed-ip=ip-addr,spoofing-protection=on|off]>|id
                           Create a compute server with a specified network.
                           Specify this option multiple times to create multiple
                           networks.
                           id: attach network interface to a specified network
                           (ID or name);
                           mac: MAC address for network interface (optional);
                           fixed-ip: fixed IP address for network interface
                           (optional);
                           spoofing-protection: enable or disable spoofing
                           protection for network interface ('on' or 'off')
                           (optional).
--volume <source=source[,id=id,key1=value1,key2=value2...]>
                           Create a compute server with a specified volume.
                           Specify this option multiple times to create multiple
                           volumes.
                           source: source type ('volume', 'image', 'snapshot', or
                           'blank');
                           id: resource ID or name for the specified source type
                           (required for source types 'volume', 'image', and
                           'snapshot');
                           size: block device size, in gigabytes (required for
                           source types 'image' and 'blank');
                           boot-index: block device boot index (required for
                           multiple volumes with source type 'volume');
                           bus: block device controller type ('ide', 'usb',
                           'virtio', 'scsi, or 'sata') (optional);
                           type: block device type (disk or cdrom) (optional);
                           rm: remove block device on compute server termination
                           ('yes' or 'no') (optional);
                           storage-policy: block device storage policy
                           (optional).
--flavor <flavor>         Flavor ID or name
...

```

### 3.10.1.2 Sample Output

This command creates a virtual machine `myvm` based on the default Cirros image and the flavor `tiny` and connects it to the network `private` with the fixed IP address `192.168.128.100`.

```

# vinfra service compute server create myvm \
--network id=private,fixed-ip=192.168.0.100 \
--volume source=image,id=cirros,size=1 --flavor tiny
+-----+

```

```

| Field          | Value |
+-----+-----+
| config_drive  |      |
| created       | 2018-09-12T13:25:02Z |
| description   |      |
| flavor        | 100   |
| host          |      |
| id            | f6656fb5-e165-4afa-a119-45882acc6af1 |
| key_name      |      |
| metadata      | {}    |
| name          | myvm  |
| networks      | []    |
| power_state   | NOSTATE |
| project_id    | 72a5db3a033c403a86756021e601ef34 |
| status        | BUILD |
| task_state    | scheduling |
| updated       | 2018-09-12T13:25:03Z |
| user_data     |      |
| volumes       | []    |
+-----+-----+

```

## 3.10.2 Listing Virtual Machines

### 3.10.2.1 Syntax

```

usage: vinfra service compute server list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]

```

List compute servers.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 3.10.2.2 Sample Output

This command lists all virtual machines in the compute cluster.

```

# vinfra service compute server list
+-----+-----+-----+-----+
| id            | name | status | host |
+-----+-----+-----+-----+
| 8cd29296-8bee-4efb-828d-0e522d816c6e | myvm | ACTIVE | stor-4.example.com.vstagedomain |
+-----+-----+-----+-----+

```

### 3.10.3 Showing Virtual Machine Details

#### 3.10.3.1 Syntax

```
usage: vinfra service compute server show [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <server>
```

Display compute server details.

positional arguments:

<server>                    Compute server ID or name

...

#### 3.10.3.2 Sample Output

This command shows the details of the virtual machine `myvm`.

```
# vinfra service compute server show myvm
+-----+-----+
| Field      | Value |
+-----+-----+
| config_drive |      |
| created      | 2018-09-12T13:30:02Z |
| description  |      |
| flavor      | 100   |
| host        | stor-4.example.com.vstoragedomain |
| id          | 8cd29296-8bee-4efb-828d-0e522d816c6e |
| key_name    |      |
| metadata    | {}    |
| name        | myvm  |
| networks    | - id: 1bf2c9da-e324-49f0-8d41-20410615f905 |
|              |   ipam_enabled: true |
|              |   ips: |
|              |     - 192.168.128.100 |
|              |   mac_addr: fa:16:3e:54:04:f0 |
|              |   name: private |
|              |   spoofing_protection: false |
| power_state | RUNNING |
| project_id  | 72a5db3a033c403a86756021e601ef34 |
| status      | ACTIVE |
| task_state  |      |
| updated    | 2018-09-12T13:30:53Z |
| user_data   |      |
| volumes    | - 30092d44-3bdd-46d8-a360-a5bc6434cbf8 |
+-----+-----+
```



## 3.10.4 Showing Virtual Machine Statistics

### 3.10.4.1 Syntax

```
usage: vinfra service compute server stat [-h] [-f {json,table,value,yaml}]
      [-c COLUMN]
      <server>
```

Display compute server statistics.

positional arguments:

<server>                    Compute server ID or name

...

### 3.10.4.2 Sample Output

This command shows the statistics for the virtual machine `myvm`.

```
# vinfra service compute server stat myvm
+-----+-----+
| Field  | Value                                |
+-----+-----+
| datetime | 2018-09-12T13:37:46.803999+00:00 |
| metrics  | block_capacity: 1073741824         |
|          | block_usage: 134549504             |
|          | cpu_usage: 0                       |
|          | mem_total: 536870912               |
|          | mem_usage: 130412544               |
|          | vcpus: 1                           |
+-----+-----+
```

## 3.10.5 Attaching Networks to Virtual Machines

### 3.10.5.1 Syntax

```
usage: vinfra service compute server iface attach [-h]
      [-f {json,table,value,yaml}]
      [-c COLUMN] [--mac <mac>]
      [--ip <ip-address>]
      [--spoofing-protection {on,off}]
      --server <server> --network
      <network>
```

Attach a network to a compute server.

```

optional arguments:
  -h, --help            show this help message and exit
  --mac <mac>          MAC address
  --ip <ip-address>    IP address
  --spoofing-protection {on,off}
                        Enable spoofing protection for the network interface.
  --server <server>    Compute server ID or name
  --network <network> Network ID or name
  ...

```

### 3.10.5.2 Sample Output

This command attaches the private network `myprivnet` to the virtual machine `myvm`.

```

# vinfra service compute server iface attach --network myprivnet --server myvm
+-----+-----+
| Field          | Value                                |
+-----+-----+
| fixed_ip       | 192.168.129.8                        |
| id             | 690ed3f2-2301-40e2-879a-126db2ecb57b |
| mac_address    | fa:16:3e:54:59:08                   |
| network_id     | 0710372e-2bdf-4dfe-b413-eb763da37e68 |
| spoofing<...> | False                                |
+-----+-----+

```

## 3.10.6 Listing Virtual Machine Networks

### 3.10.6.1 Syntax

```

usage: vinfra service compute server iface list [-h]
                                                [-f {json,table,value,yaml}]
                                                [-c COLUMN] [--full] --server
                                                <server>

```

List compute server networks.

```

optional arguments:
  -h, --help            show this help message and exit
  --server <server>    Compute server ID or name

```

```

output formatters:
  output formatter options

```

```

  -f {json,table,value,yaml}, --format {json,table,value,yaml}
  ...

```

### 3.10.6.2 Sample Output

This command lists the virtual networks that the virtual machine `myvm` is attached to. It also shows VM's IP address in each network.

```
# vinfra service compute server iface list --server myvm
+-----+-----+-----+-----+
| id          | network_id  | mac_address  | fixed_ip    |
+-----+-----+-----+-----+
| 690ed3f2-<...> | 0710372e-<...> | fa:16:3e:54:59:08 | 192.168.129.8 |
| a5b13bf3-<...> | 1bf2c9da-<...> | fa:16:3e:b9:33:bb | 192.168.128.100 |
+-----+-----+-----+-----+
```

## 3.10.7 Detaching Networks from Virtual Machines

### 3.10.7.1 Syntax

```
usage: vinfra service compute server iface detach [-h] --server <server>
        <interface>
```

Detach a network interface from a compute server.

positional arguments:

<interface>            Network interface ID

optional arguments:

-h, --help            show this help message and exit  
--server <server>    Compute server ID or name

### 3.10.7.2 Sample Output

This command detaches the network interface with the ID `471e37fd-13ae-4b8f-b70c-90ac02cc4386` from the VM with the ID `6c80b07f-da46-4a8a-89a4-eeeb8faceb27`.

```
# vinfra service compute server iface detach 471e37fd-13ae-4b8f-b70c-90ac02cc4386 \
--server 6c80b07f-da46-4a8a-89a4-eeeb8faceb27
Operation successful
```

## 3.10.8 Accessing Virtual Machine Log

### 3.10.8.1 Syntax

```
usage: vinfra service compute server log [-h] <server>

Display compute server log.

positional arguments:
  <server>      Compute server ID or name
  ...
```

### 3.10.8.2 Sample Output

This command prints the log of the virtual machine `myvm` to the file `myvm.log`.

```
# vinfra service compute server log myvm > myvm.log
```

## 3.10.9 Migrating Virtual Machines

### 3.10.9.1 Syntax

```
usage: vinfra service compute server migrate [-h] [--cold] [--node NODE]
                                             <server>

Migrate a compute server to another host.

positional arguments:
  <server>      Compute server ID or name

optional arguments:
  -h, --help    show this help message and exit
  --cold        Perform cold migration. If not set, try to determine migration
                type automatically.
  --node NODE   Destination node ID or hostname
```

### 3.10.9.2 Sample Output

This command starts migration of the VM with the ID 6c80b07f-da46-4a8a-89a4-eeeb8faceb27 to the compute node with the ID e6255aed-d6e7-41b2-ba90-86164c1cd9a6.

```
# vinfra service compute server migrate 6c80b07f-da46-4a8a-89a4-eeeb8faceb27 \
--node e6255aed-d6e7-41b2-ba90-86164c1cd9a6
Operation successful
```

## 3.10.10 Changing Virtual Machine Flavors

### 3.10.10.1 Syntax

```
usage: vinfra service compute server resize [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>] --flavor
      <flavor>
      <server>
```

Resize a compute server.

positional arguments:

<server>                    Compute server ID or name

optional arguments:

-h, --help                show this help message and exit  
 --flavor <flavor>       Apply flavor with ID or name.

...

### 3.10.10.2 Sample Output

This command changes the flavor of the virtual machine myvm to small.

```
# vinfra service compute server resize myvm --flavor small
Operation successful
```

## 3.10.11 Starting Virtual Machines

### 3.10.11.1 Syntax

```
usage: vinfra service compute server start [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
```

```

        [--timeout <seconds>]
        <server>

```

Start a compute server.

```

positional arguments:
  <server>          Compute server ID or name
  ...

```

### 3.10.11.2 Sample Output

This command starts the virtual machine `myvm`.

```

# vinfra service compute server start myvm
Operation successful

```

## 3.10.12 Pausing Virtual Machines

### 3.10.12.1 Syntax

```

usage: vinfra service compute server pause [-h] [-f {json,table,value,yaml}]
        [-c COLUMN] [--wait]
        [--timeout <seconds>]
        <server>

```

Pause a compute server.

```

positional arguments:
  <server>          Compute server ID or name
  ...

```

### 3.10.12.2 Sample Output

This command pauses the running virtual machine `myvm`.

```

# vinfra service compute server pause myvm

```

## 3.10.13 Unpausing Virtual Machines

### 3.10.13.1 Syntax

```
usage: vinfra service compute server unpause [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             <server>
```

Unpause a compute server.

```
positional arguments:
  <server>              Compute server ID or name
  ...
```

### 3.10.13.2 Sample Output

This command unpauses the paused virtual machine `myvm`.

```
# vinfra service compute server unpause myvm
```

## 3.10.14 Suspending Virtual Machines

### 3.10.14.1 Syntax

```
usage: vinfra service compute server suspend [-h] [-f {json,table,value,yaml}]
                                              [-c COLUMN] [--wait]
                                              [--timeout <seconds>]
                                              <server>
```

Suspend a compute server.

```
positional arguments:
  <server>              Compute server ID or name
  ...
```

### 3.10.14.2 Sample Output

This command suspends the running virtual machine `myvm`.

```
# vinfra service compute server suspend myvm
Operation successful
```

## 3.10.15 Resuming Virtual Machines

### 3.10.15.1 Syntax

```
usage: vinfra service compute server resume [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>]
      <server>
```

Resume a compute server.

positional arguments:

<server>            Compute server ID or name

...

### 3.10.15.2 Sample Output

This command resumes the suspended virtual machine `myvm`.

```
# vinfra service compute server resume myvm
Operation successful
```

## 3.10.16 Rebooting Virtual Machines

### 3.10.16.1 Syntax

```
usage: vinfra service compute server reboot [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>] [--hard]
      <server>
```

Reboot a compute server.

positional arguments:

<server>            Compute server ID or name



```
optional arguments:
  -h, --help            show this help message and exit
  --hard                Perform hard reboot.
  ...
```

### 3.10.16.2 Sample Output

This command reboots the virtual machine `myvm`.

```
# vinfra service compute server reboot myvm
Operation successful
```

## 3.10.17 Resetting Virtual Machines

### 3.10.17.1 Syntax

```
usage: vinfra service compute server reset-state [-h]
                                                [-f {json,table,value,yaml}]
                                                [-c COLUMN] [--wait]
                                                [--timeout <seconds>]
                                                [--state-error]
                                                <server>

Reset compute server state.

positional arguments:
  <server>            Compute server ID or name
  ...
```

### 3.10.17.2 Sample Output

This command resets the state of the virtual machine `myvm`.

```
# vinfra service compute server reset-state myvm
Operation successful
```

## 3.10.18 Stopping Virtual Machines

### 3.10.18.1 Syntax

```
usage: vinfra service compute server stop [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--wait]
      [--timeout <seconds>] [--hard]
      <server>
```

Shut down a compute server.

positional arguments:

<server>            Compute server ID or name

optional arguments:

-h, --help            show this help message and exit  
--hard                Power off a compute server.

...

### 3.10.18.2 Sample Output

This command stops the virtual machine `myvm`.

```
# vinfra service compute server stop myvm
Operation successful
```

## 3.10.19 Evacuating Virtual Machines

### 3.10.19.1 Syntax

```
usage: vinfra service compute server evacuate [-h] <server>
```

Evacuate a stopped compute server from a failed host.

positional arguments:

<server>            Compute server ID or name

...

### 3.10.19.2 Sample Output

This command evacuates the stopped VM `myvm` from its node to another, healthy compute node.

```
# vinfra service compute server evacuate ``myvm``
Operation successful
```

## 3.10.20 Deleting Virtual Machines

### 3.10.20.1 Syntax

```
usage: vinfra service compute server delete [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
                                             <server>
```

Delete a compute server.

positional arguments:

<server>            Compute server ID or name

...

### 3.10.20.2 Sample Output

This command deletes the virtual machine `myvm`.

```
# vinfra service compute server delete myvm
Operation successful
```

## 3.11 Destroying Compute Cluster

### 3.11.1 Syntax

```
usage: vinfra service compute cluster delete [-h] [-f {json,table,value,yaml}]
                                             [-c COLUMN] [--wait]
                                             [--timeout <seconds>]
```

Delete a node from the compute cluster.

...

### 3.11.2 Sample Output

This command creates a task to release nodes from the compute cluster.

```
# vinfra service compute cluster delete
+-----+-----+
| Field  | Value                |
+-----+-----+
| task_id | 063e8a15-fcfe-4629-865f-b5e5fa44b38f |
+-----+-----+
```

Task outcome:

```
# vinfra task show 063e8a15-fcfe-4629-865f-b5e5fa44b38f
+-----+-----+
| Field  | Value                |
+-----+-----+
| args   | []                   |
| kwargs | {}                   |
| name   | backend.presentation.compute.tasks.DestroyComputeClusterTask |
| state  | success              |
| task_id | 063e8a15-fcfe-4629-865f-b5e5fa44b38f |
+-----+-----+
```

## CHAPTER 4

# Managing General Settings

## 4.1 Managing Licenses

### 4.1.1 Loading License

#### 4.1.1.1 Syntax

```
usage: vinfra cluster license load [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] --key <license-key> --type
      <license-type>
```

Load a license from a key.

optional arguments:

```
-h, --help            show this help message and exit
--key <license-key>  License key to register. Specify this option multiple
                    times to register multiple keys.
--type <license-type> License type ('prolong' or 'upgrade')
```

...

#### 4.1.1.2 Sample Output

This command install the license from the key A38600-3P6W74-RZSK58-Y9ZH05-2X7J48.

```
# vinfra cluster license load --key A38600ML-3P6W746P-RZSK58BV-Y9ZH05Q5-2X7J48J6-KVRXRYPY-\
Z2FK7ZQ6-Y7FGZNYF --type upgrade
+-----+-----+
| Field   | Value                               |
+-----+-----+
```

```

| capacity | 1099511627760 |
| expiration | 2021-01-10T12:42:00 |
| free_size | 10973383165601 |
| spla | registered: false |
| | registration_url: null |
| status | active |
| total_size | 1099511627760 |
| used_size | 21733112159 |
+-----+-----+

```

## 4.1.2 Showing License Details

### 4.1.2.1 Syntax

```
usage: vinfra cluster license show [-h] [-f {json,table,value,yaml}]
                                   [-c COLUMN]
```

Show details of the installed license.

...

### 4.1.2.2 Sample Output

This command shows the details of the currently installed license.

```

# vinfra cluster license show
+-----+-----+
| Field      | Value |
+-----+-----+
| capacity   | 1099511627760 | |
| expiration | 2021-01-10T12:42:00 |
| free_size  | 10973383165601 |
| spla       | registered: false |
| |          | registration_url: null |
| status     | active |
| total_size | 1099511627760 |
| used_size  | 21733112159 |
+-----+-----+

```

## 4.2 Managing Users

### 4.2.1 Listing User Roles

#### 4.2.1.1 Syntax

```
usage: vinfra cluster user list-available-roles [-h]
        [-f {json,table,value,yaml}]
        [-c COLUMN] [--full]
```

List available user roles.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

#### 4.2.1.2 Sample Output

This command lists user roles available in Acronis Software-Defined Infrastructure.

```
# vinfra cluster user list-available-roles
+-----+-----+-----+
| description                                | id    | name  |
+-----+-----+-----+
| Can create cluster, join nodes to cluster, and manage (assign and | cluster | Cluster |
| release) disks.                            |         |        |
| Can add and remove SSH keys for cluster nodes access.            | ssh    | SSH   |
| Viewer role (read only)                    | viewer | Viewer |
| Can create and manage compute cluster.     | compute | Compute |
| Can modify network settings and roles.     | network | Network |
| Can install updates.                       | updates | Updates |
| Can perform all management operations.     | admin  | Administrator |
| Can create and manage S3 cluster.          | s3     | S3    |
| Can create and manage Acronis Backup Gateway. | abgw   | ABGW  |
| Can create and manage iSCSI targets LUNs and CHAP users.         | iscsi  | iSCSI |
| Can create and manage NFS.                 | nfs    | NFS   |
+-----+-----+-----+
```

## 4.2.2 Creating Users

### 4.2.2.1 Syntax

```
usage: vinfra cluster user create [-h] [-f {json,table,value,yaml}]
                                  [-c COLUMN] [--description <description>]
                                  [--enable | --disable] [--roles <roles>]
                                  <name>
```

Add an admin panel user.

positional arguments:

<name>                    User name

optional arguments:

-h, --help                show this help message and exit  
 --description <description>  
                           User description  
 --enable                 Enable user  
 --disable                Disable user  
 --roles <roles>         A comma-separated list of user roles

...

### 4.2.2.2 Sample Output

This command creates and enables the user `user1`, assigns it the role `Viewer`, and sets its password and description.

```
# vinfra cluster user create user1 --roles viewer --enable \  

--description "A guest user"  

Password:  

+-----+-----+  

| Field            | Value            |  

+-----+-----+  

| description     | A guest user     |  

| external_id     |                   |  

| external_provider |                   |  

| id              | 538e54fdeb13498e8f0bbff6773de5a1 |  

| is_enabled     | True             |  

| is_group        | False            |  

| is_superuser    | False            |  

| name            | user1            |  

| roles           | - description: Viewer role (read only) |  

|                 |    id: viewer    |  

|                 |    name: Viewer  |  

+-----+-----+
```



## 4.2.3 Listing Users

### 4.2.3.1 Syntax

```
usage: vinfra cluster user list [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--full]
```

List all admin panel users.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 4.2.3.2 Sample Output

This command lists users registered in Acronis Software-Defined Infrastructure.

```
# vinfra cluster user list
```

```
+-----+-----+-----+-----+-----+
| id           | name           | is_enabled | is_superuser | roles |
+-----+-----+-----+-----+-----+
| 60b67333c545442f98c084a56db7a06d | admin          | True      | True         |      |
+-----+-----+-----+-----+-----+
```

## 4.2.4 Showing User Details

### 4.2.4.1 Syntax

```
usage: vinfra cluster user show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                <user>
```

Show details of an admin panel user.

positional arguments:

<user> User ID or name

...

### 4.2.4.2 Sample Output

This command shows the details of the user admin.

```
# vinfra cluster user show admin
+-----+-----+
| Field          | Value          |
+-----+-----+
| description    |                |
| external_id    |                |
| external_provider |                |
| id             | 60b67333c545442f98c084a56db7a06d |
| is_enabled     | True           |
| is_group       | False          |
| is_superuser   | True           |
| name           | admin          |
| roles          |                |
+-----+-----+
```

## 4.2.5 Changing User Details

### 4.2.5.1 Syntax

```
usage: vinfra cluster user set [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--description <description>]
                                [--enable | --disable]
                                [--set-roles <roles> | --add-roles <roles> | --del-roles <roles>]
                                [--password] [--name <name>]
                                <user>
```

Modify admin panel user parameters.

positional arguments:

- <user> User ID or name

optional arguments:

- h, --help show this help message and exit
- description <description> User description
- enable Enable user
- disable Disable user
- set-roles <roles> A comma-separated list of user roles to set (overwrites the current user roles)
- add-roles <roles> A comma-separated list of user roles to add
- del-roles <roles> A comma separated list of user roles to remove
- password User password
- name <name> A new name for the user

...

### 4.2.5.2 Sample Output

This command adds a description for the user admin.

```
# vinfra cluster user set admin --description "The admin"
+-----+-----+
| Field          | Value          |
+-----+-----+
| description    | The admin      |
| external_id    |                 |
| external_provider |                 |
| id             | 60b67333c545442f98c084a56db7a06d |
| is_enabled     | True           |
| is_group       | False          |
| is_superuser   | True           |
| name           | admin          |
| roles          |                 |
+-----+-----+
```

## 4.2.6 Changing Current User Password

### 4.2.6.1 Syntax

```
usage: vinfra cluster user change-password [-h] [-f {json,table,value,yaml}]
                                           [-c COLUMN]
```

Change password of an admin panel user.  
...

### 4.2.6.2 Sample Output

This command changes the password of the current user.

```
# vinfra cluster user change-password
Current password:
New password:
Confirm password:
```

## 4.2.7 Deleting Users

### 4.2.7.1 Syntax

```
usage: vinfra cluster user delete [-h] <user>
```

Remove an admin panel user.

positional arguments:

<user>            User ID or name

...

### 4.2.7.2 Sample Output

This command deletes the user user1.

```
# vinfra cluster user delete user1
Operation successful
```

## 4.3 Managing SSH Keys

### 4.3.1 Adding SSH Keys

#### 4.3.1.1 Syntax

```
usage: vinfra cluster sshkey add [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                   [--wait] [--timeout <seconds>]
                                   <file>
```

Add an SSH public key from a file.

positional arguments:

<file>            SSH public key file

...

### 4.3.1.2 Sample Output

This command creates a task to add a public SSH key from the file `mykey.pub` to the list of trusted keys.

```
# vinfra cluster sshkey add id_rsa.pub
+-----+
| Field | Value |
+-----+
| task_id | 100a54ce-0bf5-4bc0-8e46-2e8b952343e6 |
+-----+
```

Task outcome:

```
# vinfra task show 100a54ce-0bf5-4bc0-8e46-2e8b952343e6
+-----+
| Field | Value |
+-----+
| args | - admin |
| | - 1 |
| kwargs | key: ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQACueW0956J/u5kjWnia7zePChoTMVBtsh1TDNg0skM |
| | shfHWUzzfydi3/4sTrJ++6dtIoS1D3VVHvHBvp456PT5e/eVy7u0Sip0PPoDY2vS2IEY+zjT6MYABi6oEYom |
| | Dbi7CsRL02HcTWzAkooZnlimWPggYaMT10BZOKAvNB+Ctpkw8JaT5PRve8UVfjxIQIzL6pQOf0CDeCHgDsvw |
| | xK7SrqOvBzTlF9mWkGdTGy+R0JrgGk+v9PvDXZweK+qS54uaGmpB6ZRkKMroIk3h+nZ4y/1eQ6m1C8Aspa0 |
| | nnaMaNK0tw0ibrd3MDroMcqkJWtTH/cukD3sB+MjL6nmFlrrAFRU6PBkwysIio6/XHS9jG+TI7NeRApkHnwi |
| | vwIWEKsg6pqaiLUsMi/46KCHzde20zg08Hd0R5d7hNN/80mhD7b+bY9wig+VTMoQFQYSWrIy/qLL95ws4amg |
| | nX0IksNFjffEEe/+1McZxt3j5kqnjW7OT2/xkqqWoumaM+FEPLNijL18yb29/XJr/cQZX5R9iXSk33DVjhln/ |
| | HG7xpHqAtrXbvKY8zI8t23otGT/rSvWRWV/wgPBZVSWtsE99FEMmwmkx/b3KuPhi0jK0IUKcv5UBL+NLHw4 |
| | rZRiYgw/fWXPO3f6ZSLLJXtW4iW+BQL60qQWUNQ== |
| | user@example.com |
| name | backend.presentation.nodes.ssh.tasks.CreateSshKeyTask |
| result | id: 6a2fb834-4bc6-4597-ae74-7cacf96b7c75 |
| | key: ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQACueW0956J/u5kjWnia7zePChoTMVBtsh1TDNg0skM |
| | shfHWUzzfydi3/4sTrJ++6dtIoS1D3VVHvHBvp456PT5e/eVy7u0Sip0PPoDY2vS2IEY+zjT6MYABi6oEYom |
| | Dbi7CsRL02HcTWzAkooZnlimWPggYaMT10BZOKAvNB+Ctpkw8JaT5PRve8UVfjxIQIzL6pQOf0CDeCHgDsvw |
| | xK7SrqOvBzTlF9mWkGdTGy+R0JrgGk+v9PvDXZweK+qS54uaGmpB6ZRkKMroIk3h+nZ4y/1eQ6m1C8Aspa0 |
| | nnaMaNK0tw0ibrd3MDroMcqkJWtTH/cukD3sB+MjL6nmFlrrAFRU6PBkwysIio6/XHS9jG+TI7NeRApkHnwi |
| | vwIWEKsg6pqaiLUsMi/46KCHzde20zg08Hd0R5d7hNN/80mhD7b+bY9wig+VTMoQFQYSWrIy/qLL95ws4amg |
| | nX0IksNFjffEEe/+1McZxt3j5kqnjW7OT2/xkqqWoumaM+FEPLNijL18yb29/XJr/cQZX5R9iXSk33DVjhln/ |
| | HG7xpHqAtrXbvKY8zI8t23otGT/rSvWRWV/wgPBZVSWtsE99FEMmwmkx/b3KuPhi0jK0IUKcv5UBL+NLHw4 |
| | rZRiYgw/fWXPO3f6ZSLLJXtW4iW+BQL60qQWUNQ== |
| | user@example.com |
| | label: user@example.com |
| state | success |
| task_id | 100a54ce-0bf5-4bc0-8e46-2e8b952343e6 |
+-----+
```

## 4.3.2 Listing SSH Keys

### 4.3.2.1 Syntax

```
usage: vinfra cluster sshkey list [-h] [-f {json,table,value,yaml}]
                                [-c COLUMN] [--full]
```

Show the list of added SSH public keys.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

### 4.3.2.2 Sample Output

This command lists trusted SSH keys.

```
# vinfra cluster sshkey list
```

id	key	label
8ccf7f1b-6a53-4d74-99ce-c410d51a9921	ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCA QCueW0956J/u5kjWnia7zePChoTMVBtsh1TDN g0skMg5shfHWUzzfydi3/4sTrJ++6dtIoS1D3 VVHvHBvp456PT5e/eVy7u0Sip0PPoDY2vS2IE Y+zjT6MYABi6oEYomIIDbi7CsRL02HcTWzAko oZnlmWPggYaMT10BZOKAvNB+Ctpkw8JaT5PR ve8UVfjxIQIzL6pQ0f0CDeCHgDsvwcmxK7Srq OvBzT1F9mWkGdTGy+R0JrgGk+v9PvDXZweK+ qS54uaGmpB6ZRkKMroIk3h+nZ4y/1eQ6m1C8A spa0f5nnaMaNK0tw0ibrd3MDroMcqkJWTTH/c ukD3sB+MjL6nmFlrrAfRU6PBkwysIio6/XHS9 jG+TI7NeRApkHnwii0vwIWEKSg6ppaiLUsMi/ 46KCHzde20zg08Hd0R5d7hNN/80mhD7b+bY9w ig+VTMoQFQYSWrIy/qLL95ws4amgAQnX0IksN FjffEE/+lMcZXt3j5kqjW70T2/xkqqWoumaM +FEPLNijL18yb29/XJr/cQZX5R9iXSk33DVjh ln/EyHG7xpHqAtrXbvKY8zI8t23otGT/rSvWR WV/wgPBZVWSWtsE99FEMmwxk/b3KuPhi0jK0 IUKcv5UBL+NLHw4gQrZRiYgw/fWXP03f6ZSLL JXtW4iw+BQL60qQWUNQ==	user@example.com
	user@example.com	

## 4.3.3 Deleting SSH Keys

### 4.3.3.1 Syntax

```
usage: vinfra cluster sshkey delete [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN] [--wait] [--timeout <seconds>]
                                     <sshkey>
```

Remove an SSH public key from storage cluster nodes.

```
positional arguments:
  <sshkey>              SSH key value
  ...
```

### 4.3.3.2 Sample Output

This command creates a task to delete the SSH key with the ID 8ccf7f1b-6a53-4d74-99ce-c410d51a9921.

```
# vinfra cluster sshkey delete 8ccf7f1b-6a53-4d74-99ce-c410d51a9921
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 053802b2-b4c3-454d-89e2-6d6d312dd2ed |
+-----+-----+
```

Task outcome:

```
# vinfra task show 053802b2-b4c3-454d-89e2-6d6d312dd2ed
+-----+-----+
| Field | Value |
+-----+-----+
| args  | - admin |
|       | - 1 |
|       | - 8ccf7f1b-6a53-4d74-99ce-c410d51a9921 |
| kwargs | {} |
| name  | backend.presentation.nodes.ssh.tasks.RemoveSshKeyTask |
| state | success |
| task_id | 053802b2-b4c3-454d-89e2-6d6d312dd2ed |
+-----+-----+
```

## 4.4 Managing External DNS Servers

### 4.4.1 Listing DNS Servers

#### 4.4.1.1 Syntax

```
usage: vinfra cluster settings dns show [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN]
```

Display DNS servers.

...

#### 4.4.1.2 Sample Output

This command lists the currently used DNS servers: both internal (obtained via DHCP) and external (static set by the user).

```
# vinfra cluster settings dns show
+-----+-----+
| Field          | Value                                |
+-----+-----+
| dhcp_nameservers | 10.10.0.10,10.10.0.11,10.37.130.2 |
| nameservers     | 10.10.0.11,10.10.0.10              |
+-----+-----+
```

### 4.4.2 Setting External DNS Servers

#### 4.4.2.1 Syntax

```
usage: vinfra cluster settings dns set [-h] [-f {json,table,value,yaml}]
                                         [-c COLUMN] --nameservers <nameservers>
```

Set DNS servers.

optional arguments:

```
-h, --help          show this help message and exit
--nameservers <nameservers>
                    A comma-separated list of DNS servers
```

...



### 4.4.2.2 Sample Output

This command sets the external DNS server to 8.8.8.8.

```
# vinfra cluster settings dns set --nameservers 8.8.8.8
+-----+-----+
| Field          | Value          |
+-----+-----+
| dhcp_nameservers | - 10.10.0.10 |
|                  | - 10.10.0.11 |
|                  | - 10.37.130.2 |
| nameservers     | - 8.8.8.8     |
+-----+-----+
```

## 4.5 Configuring Management Node High Availability

### 4.5.1 Creating Management Node HA Cluster

#### 4.5.1.1 Syntax

```
usage: vinfra cluster ha create [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--wait] [--timeout <seconds>] --virtual-ip
                                <network:ip> --nodes <nodes> [--force]
```

Create a HA configuration.

optional arguments:

```
-h, --help            show this help message and exit
--virtual-ip <network:ip>
                        HA configuration mapping in the format:
                        network: network to include in the HA configuration
                        (must include at least one of these traffic types:
                        Internal management, Admin panel, or Compute API);
                        ip: virtual IP address that will be used in the HA
                        configuration.
                        Specify this option multiple times to create a HA
                        configuration for multiple networks.
--nodes <nodes>       A comma-separated list of node IDs or hostnames
--force               Skip checks for minimal hardware requirements.
```

...

### 4.5.1.2 Sample Output

This command creates a task to create a management node HA cluster from nodes with the IDs 94d58604-6f30-4339-8578-adb7903b7277, f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4, and 7d7d37b8-4c06-4f1a-b3a6-4b54257d70ce.

The command must specify the network with the traffic type `Internal` management as well as one with the traffic type `Admin` panel.

**Important:** After the HA cluster has been created, the admin panel will only be accessible at the provided public IP address. Log in to said address via SSH to continue managing Acronis Software-Defined Infrastructure with the `vinfra` CLI tool. You may also need to set the `VINFRA_PASSWORD` environment variable again, because you will access different HA cluster nodes on each log in where it may not have been set.

```
# vinfra cluster ha create --virtual-ip Private:10.37.130.200 \
--virtual-ip Public:10.94.41.244 --nodes 94d58604-6f30-4339-8578-adb7903b7277,\
f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4,7d7d37b8-4c06-4f1a-b3a6-4b54257d70ce
+-----+
| Field | Value |
+-----+
| task_id | 80a00e55-335d-4d41-bac4-5fee4791d423 |
+-----+
```

Task outcome:

```
# vinfra task show 80a00e55-335d-4d41-bac4-5fee4791d423
+-----+
| Field | Value |
+-----+
| args | - - - 6095a997-e5f1-493d-a750-41ddf277153b |
| | - 10.37.130.200 |
| | - - 358bdc39-cd8b-4565-8ebf-e7c12cdc1cf7 |
| | - 10.94.41.244 |
| | - - 94d58604-6f30-4339-8578-adb7903b7277 |
| | - f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 |
| | - 7d7d37b8-4c06-4f1a-b3a6-4b54257d70ce |
| kwargs | {} |
| name | backend.presentation.ha.tasks.CreateHaConfigTask |
| state | success |
| task_id | 80a00e55-335d-4d41-bac4-5fee4791d423 |
+-----+
```

## 4.5.2 Adding Nodes to Management Node HA Cluster

### 4.5.2.1 Syntax

```
usage: vinfra cluster ha join [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                             [--wait] [--timeout <seconds>] --nodes <nodes>
```

Join node to the HA configuration.

optional arguments:

```
-h, --help            show this help message and exit
--nodes <nodes>      A comma-separated list of node IDs or hostnames
...
```

### 4.5.2.2 Sample Output

This command creates a task to add the node with the ID 4b83a87d-9adf-472c-91f0-782c47b2d5f1 to the management node HA cluster.

```
# vinfra cluster ha join --nodes 4b83a87d-9adf-472c-91f0-782c47b2d5f1
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 565e9146-254b-4f7a-a2ff-b7119c95baa9 |
+-----+-----+
```

Task outcome:

```
# vinfra task show 565e9146-254b-4f7a-a2ff-b7119c95baa9
+-----+-----+
| Field | Value |
+-----+-----+
| args  | - - 4b83a87d-9adf-472c-91f0-782c47b2d5f1 |
| kwargs | {} |
| name   | backend.presentation.ha.tasks.JoinHaNodesTask |
| state  | success |
| task_id | 565e9146-254b-4f7a-a2ff-b7119c95baa9 |
+-----+-----+
```

## 4.5.3 Showing Management Node HA Configuration

### 4.5.3.1 Syntax

```
usage: vinfra cluster ha show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
```

Display the HA configuration.

...

### 4.5.3.2 Sample Output

This command shows the management node HA cluster configuration.

```
# vinfra cluster ha show
+-----+-----+
| Field           | Value                                     |
+-----+-----+
| ha_cluster_location | https://10.37.130.200:8888               |
| nodes           | - id: 7d7d37b8-4c06-4f1a-b3a6-4b54257d70ce |
|                 |   interface: xxx                         |
|                 |   ipaddr: 10.37.130.103                  |
|                 |   is_primary: false                      |
|                 | - id: 94d58604-6f30-4339-8578-adb7903b7277 |
|                 |   interface: xxx                         |
|                 |   ipaddr: 10.37.130.101                  |
|                 |   is_primary: true                       |
|                 | - id: f59dabdb-bd1c-4944-8af2-26b8fe9ff8d4 |
|                 |   interface: xxx                         |
|                 |   ipaddr: 10.37.130.102                  |
|                 |   is_primary: false                      |
|                 | - id: 4b83a87d-9adf-472c-91f0-782c47b2d5f1 |
|                 |   interface: xxx                         |
|                 |   ipaddr: 10.37.130.104                  |
|                 |   is_primary: false                      |
| primary_node_location | https://10.94.41.23:8888                 |
| virtual_ips        | - ip: 10.37.130.200                       |
|                   |   roles_set: 6095a997-e5f1-493d-a750-41ddf277153b |
|                   | - ip: 10.94.41.244                         |
|                   |   roles_set: 358bdc39-cd8b-4565-8ebf-e7c12dcd1cf7 |
+-----+-----+
```

## 4.5.4 Releasing Nodes from Management Node HA Cluster

### 4.5.4.1 Syntax

```
usage: vinfra cluster ha release [-h] [-f {json,table,value,yaml}] [-c COLUMN]
      [--wait] [--timeout <seconds>] --nodes
      <nodes>
```

Release node from the HA configuration.

```
optional arguments:
  -h, --help            show this help message and exit
  --nodes <nodes>      A comma-separated list of node IDs or hostnames
  ...
```

#### 4.5.4.2 Sample Output

This command creates a task to release the node with the ID 4b83a87d-9adf-472c-91f0-782c47b2d5f1 from the management node HA cluster.

```
# vinfra cluster ha release --nodes 4b83a87d-9adf-472c-91f0-782c47b2d5f1
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | c1f3e9c3-0a7b-455a-96d4-cef3b7e86e62 |
+-----+-----+
```

Task outcome:

```
# vinfra task show c1f3e9c3-0a7b-455a-96d4-cef3b7e86e62
+-----+-----+
| Field | Value |
+-----+-----+
| args  | - - 4b83a87d-9adf-472c-91f0-782c47b2d5f1 |
| kwargs | {} |
| name  | backend.presentation.ha.tasks.DisjoinHaNodesTask |
| state | success |
| task_id | c1f3e9c3-0a7b-455a-96d4-cef3b7e86e62 |
+-----+-----+
```

## 4.6 Managing Storage Tier Encryption

### 4.6.1 Showing Storage Tier Encryption Status

#### 4.6.1.1 Syntax

```
usage: vinfra cluster settings encryption show [-h]
                                             [-f {json,table,value,yaml}]
                                             [-c COLUMN]
```

Display storage tiers encryption.

...

### 4.6.1.2 Sample Output

This command shows encryption status of each storage tier.

```
# vinfra cluster settings encryption show
+-----+-----+
| Field | Value |
+-----+-----+
| tier0  | False |
| tier1  | False |
| tier2  | False |
| tier3  | False |
+-----+-----+
```

## 4.6.2 Setting Storage Tier Encryption

### 4.6.2.1 Syntax

```
usage: vinfra cluster settings encryption set [-h]
                                             [-f {json,table,value,yaml}]
                                             [-c COLUMN]
                                             [--tier-enable {0,1,2,3}]
                                             [--tier-disable {0,1,2,3}]

Set storage tiers encryption.

optional arguments:
  -h, --help            show this help message and exit
  --tier-enable {0,1,2,3}
                        Enable encryption for storage tiers. This option can
                        be used multiple times.
  --tier-disable {0,1,2,3}
                        Disable encryption for storage tiers. This option can
                        be used multiple times.
  ...
```

### 4.6.2.2 Sample Output

This command enables encryption for the storage tier 2.

```
# vinfra cluster settings encryption set --tier-enable 2
+-----+-----+
| Field | Value |
+-----+-----+
| tier0  | False |
| tier1  | False |
```

```
| tier2 | True |
| tier3 | False |
+-----+-----+
```

## 4.7 Managing Alerts

### 4.7.1 Listing Alerts

#### 4.7.1.1 Syntax

```
usage: vinfra cluster alert list [-h] [-f {json,table,value,yaml}] [-c COLUMN]
                                [--full] [--all]
```

List alert log entries

optional arguments:

```
-h, --help            show this help message and exit
--all                 Show both enabled and disabled alerts.
```

output formatters:

output formatter options

```
-f {json,table,value,yaml}, --format {json,table,value,yaml}
```

...

#### 4.7.1.2 Sample Output

This command lists all alerts in the log and shows which alerts are enabled and disabled.

```
# vinfra cluster alert list --all
+-----+-----+-----+-----+-----+
| id | type           | datetime           | severity | enabled |
+-----+-----+-----+-----+-----+
| 1 | Network warning | 2018-08-30T18:02:14 | warning | True |
| 2 | Network warning | 2018-08-30T18:02:14 | warning | True |
| 3 | Network warning | 2018-08-30T18:02:14 | warning | True |
| 4 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 5 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 6 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 7 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 8 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 9 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 10 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 11 | Network warning | 2018-08-31T13:02:15 | warning | True |
```

```
| 12 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 13 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 14 | Network warning | 2018-08-31T13:02:15 | warning | True |
| 15 | Network warning | 2018-08-31T13:02:15 | warning | True |
+-----+-----+-----+-----+-----+
```

## 4.7.2 Showing Alert Details

### 4.7.2.1 Syntax

```
usage: vinfra cluster alert show [-h] [-f {json,table,value,yaml}] [-c COLUMN]
      <alert>
```

Show details of the specified alert log entry.

positional arguments:

```
<alert>          Alert ID
...
```

### 4.7.2.2 Sample Output

This command shows the details of alert with ID 1.

```
# vinfra cluster alert show 1
+-----+-----+-----+-----+-----+
| Field          | Value                                                                 |
+-----+-----+-----+-----+-----+
| _type          | undefined_speed                                                       |
| cluster_id     |                                                                       |
| cluster_name   |                                                                       |
| datetime       | 2018-08-30T18:02:14.855302+00:00                                       |
| details        | host: stor-1.example.com.vstoragedomain.                             |
| enabled        | True                                                                    |
| group          | node                                                                    |
| host           | stor-1.example.com.vstoragedomain.                                     |
| id             | 1                                                                        |
| message        | Network interface "eth1" on node "stor-1.example.com.vstoragedomain." has |
|                | an undefined speed                                                    |
| node_id        | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55                                  |
| object_id      | eth1                                                                    |
| severity       | warning                                                                  |
| suspended      |                                                                       |
| type           | Network warning                                                         |
+-----+-----+-----+-----+-----+
```



## 4.7.3 Removing Alerts from Log

### 4.7.3.1 Syntax

```
usage: vinfra cluster alert delete [-h] [-f {json,table,value,yaml}]
                                   [-c COLUMN]
                                   <alert>
```

Remove an entry from the alert log.

```
positional arguments:
  <alert>                Alert ID
  ...
```

### 4.7.3.2 Sample Output

This command deletes the alert with the ID 1 from the log.

```
# vinfra cluster alert delete 1
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| _type      | undefined_speed                          |
| cluster_id |                                           |
| cluster_name |                                           |
| datetime   | 2018-08-30T18:02:14.855302+00:00        |
| details    | host: stor-1.example.com.vstoragedomain. |
| enabled    | True                                      |
| group      | node                                      |
| host       | stor-1.example.com.vstoragedomain.      |
| id         | 1                                         |
| message    | Network interface "eth1" on node "stor-1.example.com.vstoragedomain." has an |
|            | undefined speed                          |
| node_id    | 4f96acf5-3bc8-4094-bcb6-4d1953be7b55    |
| object_id  | eth1                                      |
| severity   | warning                                   |
| suspended  |                                           |
| type       | Network warning                          |
+-----+-----+
```

## 4.8 Managing Audit Log

### 4.8.1 Listing Audit Log Entries

#### 4.8.1.1 Syntax

```
usage: vinfra cluster auditlog list [-h] [-f {json,table,value,yaml}]
      [-c COLUMN] [--full]
```

List all audit log entries.

optional arguments:

-h, --help show this help message and exit

output formatters:

...

#### 4.8.1.2 Sample Output

This command lists the audit log entries.

```
# vinfra cluster auditlog list
+-----+-----+-----+-----+-----+
| id | username | type | activity | timestamp |
+-----+-----+-----+-----+-----+
| 1 | admin | LoginUser | User login | 2018-09-07T08:33:44 |
| 2 | admin | ChangeNetwrokInterface | Configure network | 2018-09-07T09:53:58 |
| 3 | admin | UpInterface | Bring up interface | 2018-09-07T09:54:44 |
| 4 | admin | ChangeNetwrokInterface | Configure network | 2018-09-07T09:54:54 |
| 5 | admin | CreateBonding | Create bonding | 2018-09-07T09:57:24 |
| 17 | admin | RemoveNode | Forget node | 2018-09-07T12:21:59 |
| 14 | admin | RemoveNetworkIface | Delete interface | 2018-09-07T12:17:14 |
| 15 | admin | RemoveNode | Forget node | 2018-09-07T12:17:49 |
| 6 | admin | UpInterface | Bring up interface | 2018-09-07T10:59:28 |
| 7 | admin | ChangeNetwrokInterface | Configure network | 2018-09-07T10:59:46 |
| 9 | admin | UpInterface | Bring up interface | 2018-09-07T11:42:29 |
| 10 | admin | UpInterface | Bring up interface | 2018-09-07T11:42:42 |
| 11 | admin | CreateBonding | Create bonding | 2018-09-07T11:43:46 |
| 12 | admin | ChangeNetwrokInterface | Configure network | 2018-09-07T11:52:17 |
| 13 | admin | ChangeNetwrokInterface | Configure network | 2018-09-07T11:52:44 |
| 16 | admin | RemoveNode | Forget node | 2018-09-07T12:21:51 |
| 8 | admin | CreateBonding | Create bonding | 2018-09-07T11:00:39 |
| 18 | admin | RemoveNode | Forget node | 2018-09-07T12:22:08 |
| 19 | admin | UpInterface | Bring up interface | 2018-09-07T12:33:16 |
| 20 | admin | CreateVLAN | Create VLAN | 2018-09-07T12:34:18 |
| 21 | admin | RemoveNetworkIface | Delete interface | 2018-09-07T13:26:40 |
```

```

| 22 | admin | LoginUser | User login | 2018-09-07T14:50:06 |
| 23 | admin | LoginUser | User login | 2018-09-07T14:51:34 |
| 24 | admin | CreateNetworkRolesSet | Create custom role set | 2018-09-07T15:06:03 |
| 25 | admin | ChangeNetworkRolesSet | Configure custom role set | 2018-09-07T15:37:50 |
| 26 | admin | RemoveNetworkRolesSet | Remove custom role set | 2018-09-07T15:39:31 |
| 27 | admin | CreateNetworkRole | Create custom role | 2018-09-07T15:58:50 |
| 28 | admin | RemoveNetworkRole | Remove custom role | 2018-09-07T16:20:22 |
+-----+-----+-----+-----+-----+

```

## 4.8.2 Showing Audit Log Entry Details

### 4.8.2.1 Syntax

```

usage: vinfra cluster auditlog show [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN]
                                     <auditlog>

```

Show details of an audit log entry.

positional arguments:

<auditlog>            Audit log ID

...

### 4.8.2.2 Sample Output

This command shows the details of the audit log entry with the ID 1.

```

# vinfra cluster auditlog show 1
+-----+-----+
| Field      | Value |
+-----+-----+
| activity   | User login |
| cluster_id |         |
| cluster_name |         |
| component  | Users |
| details    | [] |
| id         | 1 |
| message    | User "admin" login |
| node_id    |         |
| result     | success |
| session_id | 817a19beaf244f92604fbf4b40af2c29 |
| task_id    | 5686556295049300 |
| timestamp  | 2018-09-07T08:33:44.175797+00:00 |
| type       | LoginUser |
| username   | admin |
+-----+-----+

```

## 4.9 Sending Problem Reports

### 4.9.1 Syntax

```
usage: vinfra cluster problem-report [-h] [-f {json,table,value,yaml}]
                                     [-c COLUMN] [--wait]
                                     [--timeout <seconds>] [--email <email>]
                                     [--description <description>] [--send]
```

Generate and send a problem report.

optional arguments:

```
-h, --help            show this help message and exit
--email <email>      Contact email address
--description <description>
                       Problem description
--send                Generate the problem report archive and send it to the
                       technical support team.
```

...

### 4.9.2 Sample Output

This command creates a task to send a problem report with the description “Test report” to the technical support team and use [test@example.com](mailto:test@example.com) as a reply-to address. Note the problem report ID in the task details. You will need to mention it in the support ticket.

```
# vinfra cluster problem-report --email test@example.com --description "Test report" --send
+-----+-----+
| Field | Value |
+-----+-----+
| task_id | 8bcfb92f-f02b-4de8-8e44-3426047630e3 |
+-----+-----+
```

Task outcome:

```
+-----+-----+
| Field | Value |
+-----+-----+
| details |
| name | backend.presentation.reports.tasks.ReportProblemTask |
| result | id: '1001923113' |
| | path: /var/cache/problem-reports/report-2018-12-10T15:33:23.391329.tar.gz |
| state | success |
| task_id | 37d5c13a-001c-4789-8242-96825a17deda |
+-----+-----+
```