



7. Deploy the NetApp mNode: NetApp HCI with RHV

NetApp HCI Solutions

NetApp
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The management node (mNode) is a VM that runs in parallel with one or more Element software-based storage clusters. It is used for the following purposes:

- Providing system services including monitoring and telemetry
- Managing cluster assets and settings
- Running system diagnostic tests and utilities
- Enabling callhome for NetApp ActiveIQ for additional support

To install the NetApp mNode on Red Hat Virtualization, complete the following steps:

1. Upload the mNode ISO as a disk to the storage domain. Navigate to Storage > Disks > Upload and click Start. Then click Upload Image and select the downloaded mNode ISO image. Verify the storage domain, the host to perform the upload, and additional details. Then click OK to upload the image to the domain. A progress bar indicates when the upload is complete and the ISO is usable.
2. Create a VM disk by navigating to Storage > Disks and click New. The mNode disk must be at least 400 GB in size but can be thin-provisioned. In the wizard, enter the name of your choice, select the proper data center, make sure that the proper storage domain is selected, select Thin Provisioning for the allocation policy, and check the Wipe After Delete checkbox. Click OK.

New Virtual Disk

Image Direct LUN Cinder Managed Block

Size (GiB)	<input type="text" value="400"/>	<input checked="" type="checkbox"/> Wipe After Delete
Alias	<input type="text" value="mNode_disk"/>	<input type="checkbox"/> Shareable
Description	<input type="text"/>	
Data Center	<input type="text" value="Default"/>	
Storage Domain	<input type="text" value="data_domain (1784 GiB free of 1907 GiB)"/>	
Allocation Policy	<input type="text" value="Thin Provision"/>	
Disk Profile	<input type="text" value="data_domain"/>	

3. Next, navigate to Compute > Virtual Machines and click New. In the General sub-tab, select the appropriate cluster, enter the name of your choice, click attach, and select the disk created in the previous step. Check the box below OS to emphasize that it is a bootable drive. Click OK.

Attach Virtual Disks										
<div style="display: flex; gap: 5px;"> Image Direct LUN Cinder Managed Block </div>										
Alias	Description	ID	Virtual Size	Actual Size	Storage Domain	Interface	R/O	OS		
<input checked="" type="radio"/> mNode_disk		0438434a-9...	400 GiB	1 GiB	data_domain	VirtIO	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

- Select ovirtmgmt from the dropdown for nic1. Click the (+) sign and select the storage network interface from the dropdown list for nic2.

New Virtual Machine

General >

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster: Default

Template: Blank | (0)

Operating System: Other OS

Instance Type: Custom

Optimized for: Server

Name: NetApp mNode

Description:

Comment:

VM ID:

Stateless Start in Pause Mode Delete Protection

Instance Images: mNode_disk: (400 GB) attaching (boot)

Instantiate VM network interfaces by picking a vNIC profile.

nic1: ovirtmgmt/ovirtmgmt

nic2: storagenet/storagenet

Hide Advanced Options
OK Cancel

- Click the System sub-tab and make sure that it has at least 12GB of memory and 6 virtual CPUs as recommended.

New Virtual Machine
✕

General	Cluster	Default
System >	Template	Blank (0)
Initial Run	Operating System	Other OS
Console	Instance Type	Custom
Host	Optimized for	Server
High Availability	Memory Size	12288 MB
Resource Allocation	Maximum memory ⓘ	49152 MB
Boot Options	Physical Memory Guaranteed ⓘ	12288 MB
Random Generator	Total Virtual CPUs ⓘ	6
Custom Properties	<input type="radio"/> Advanced Parameters	
Icon	General Hardware Clock Time Offset ⓘ	
Foreman/Satellite	<input type="checkbox"/> Provide custom serial number policy ⓘ	
Affinity Labels	default: (GMT+00:00) GMT Standard Time	

Hide Advanced Options
OK Cancel

- Click the Boot Options sub-tab, select CD-ROM as the first device in the boot sequence, select Hard Drive as the second device. Enable Attach CD and attach the mNode ISO. Then click OK.

New Virtual Machine
✕

General	Cluster	Default
System		<i>Data Center: Default</i>
Initial Run	Template	Blank (0)
Console	Operating System	Other OS
Host	Instance Type	Custom
High Availability	Optimized for	Server
Resource Allocation	Boot Sequence:	
Boot Options >	First Device	CD-ROM
Random Generator	Second Device	Hard Disk
Custom Properties	<input checked="" type="checkbox"/> Attach CD	solidfire-fdva-sodium-patch5-11.5.0
Icon	<input type="checkbox"/> Enable menu to select boot device	
Foreman/Satellite		
Affinity Labels		

Hide Advanced Options
OK Cancel

The VM is created.

- After the VM becomes available, power it on, and open a console to it. It begins to load the NetApp Solidfire mNode installer. When the installer is loaded, you are prompted to start the RTFI magnesium installation; type `yes` and press Enter. The installation process begins, and after it is complete, it automatically powers off the VM.



SOLIDFIRE



Starting SolidFire RTFI magnesium

Proceed (Yes,No)

yes

8. Next, click the mNode VM and click Edit. In the Boot Options sub-tab, uncheck the Attach CD checkbox and click the OK button.

Edit Virtual Machine
✕

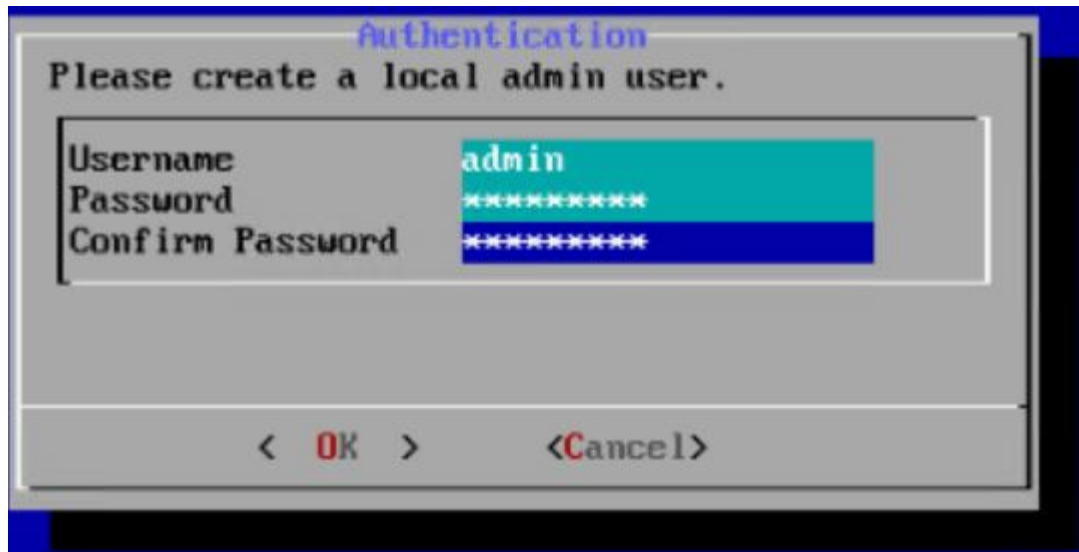
General	Cluster	Default
System		<i>Data Center: Default</i>
Initial Run	Template	Blank (0)
Console	Operating System	Other OS
Host	Instance Type	Custom
High Availability	Optimized for	Server
Resource Allocation	Boot Sequence:	
Boot Options	First Device	CD-ROM
Random Generator	Second Device	Hard Disk
Custom Properties	<input type="checkbox"/> Attach CD	solidfire-fdva-magnesium-12.0.0.333
Icon	<input type="checkbox"/> Enable menu to select boot device	
Foreman/Satellite		
Affinity Labels		

Hide Advanced Options
OK Cancel

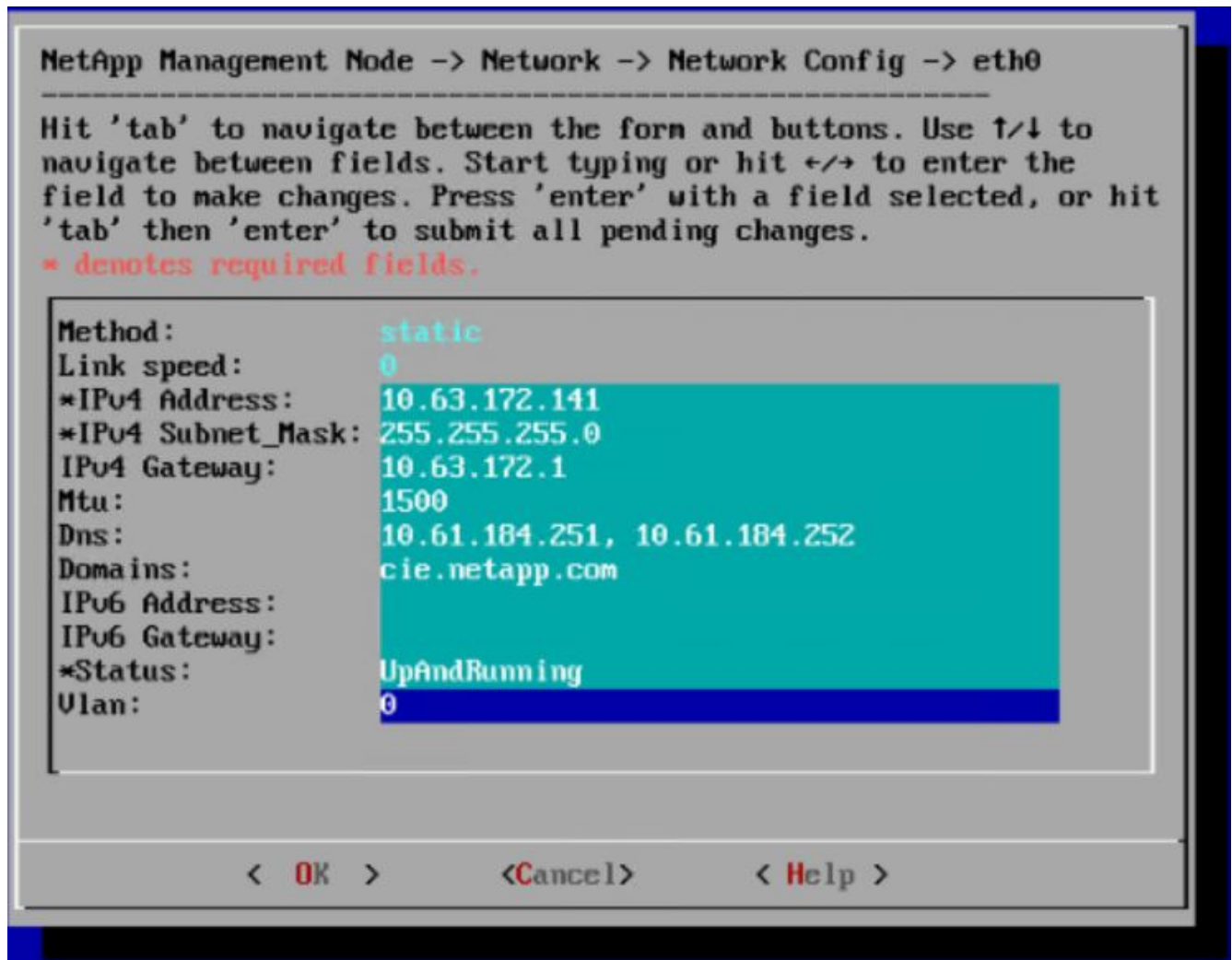
9. Power on the mNode VM. Using the terminal user interface (TUI), create a management node admin user.



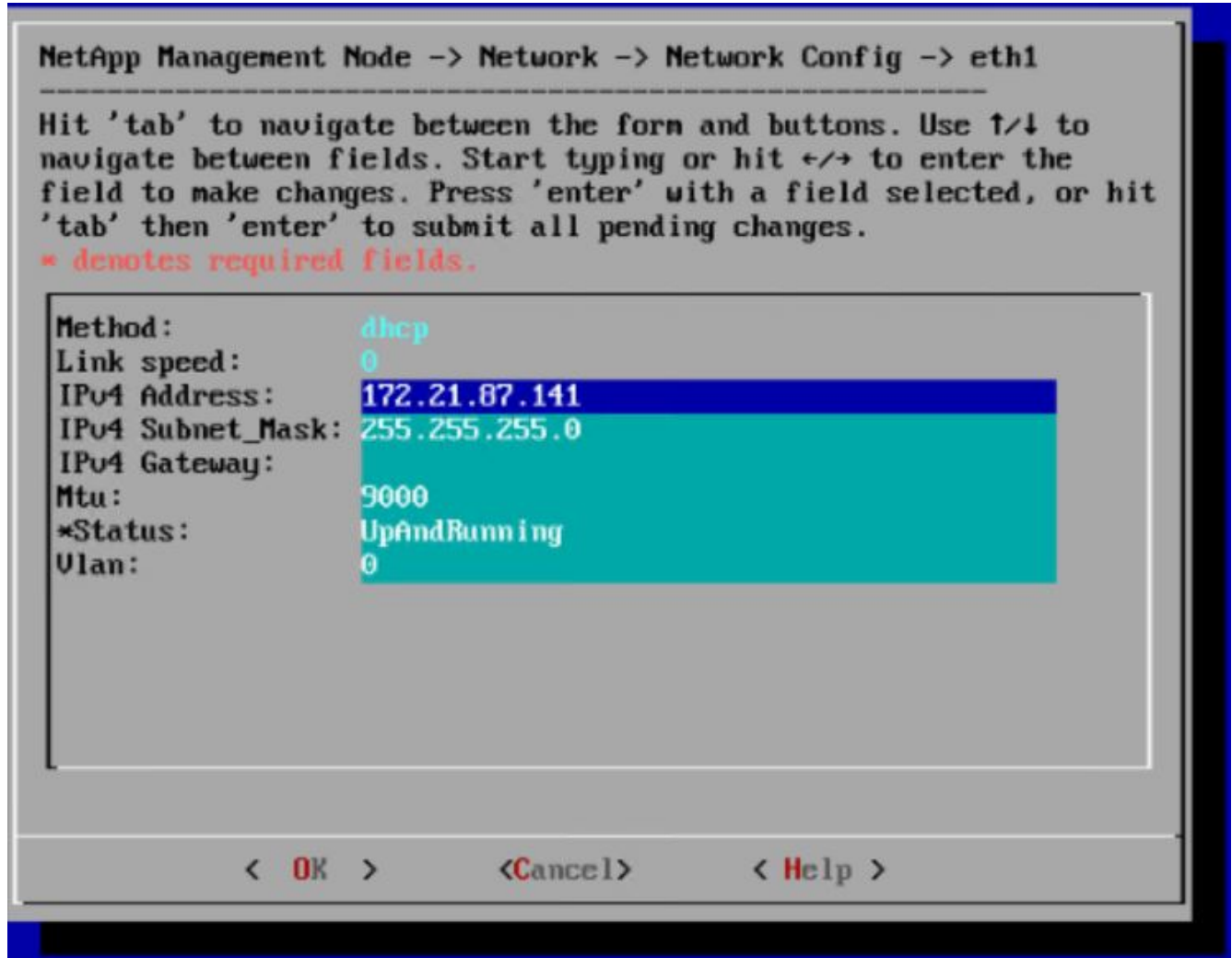
To move through the menu options, press the Up or Down arrow keys. To move through the buttons, press Tab. To move from the buttons to the fields, press Tab. To navigate between fields, press the Up or Down arrow keys.



10. After the user is created, you are returned to a login screen. Log in with the credentials that were just created.
11. To configure the network interfaces starting with the management interface, navigate to Network > Network Config > eth0 and enter the IP address, netmask, gateway, DNS servers, and search domain for your environment. Click OK.



- Next, configure eth1 to access the storage network. Navigate to Network > Network Config > eth1 and enter the IP address and netmask. Verify that the MTU is 9000. Then click OK.



You can now close the TUI interface.

- SSH into the management node using the management IP, escalate to root and register the mNode with the HCI storage cluster.

```
admin@SF-3D1C ~ $ sudo su
```

```
SF-3D1C /home/admin # /sf/packages/mnode/setup-mnode --mnode_admin_user
admin --storage_mvip 10.63.172.140 --storage_username admin
--telemetry_active true
```

```
Enter the password for storage user admin:
```

```
Enter password for mNode user admin:
```

```
[2020-05-21T17:19:53.281657Z]:[setup_mnode:296] INFO:Starting mNode
deployment
```

```
[2020-05-21T17:19:53.286153Z]:[config_util:1313] INFO:No previously
running mNode. Continuing with deployment.
```

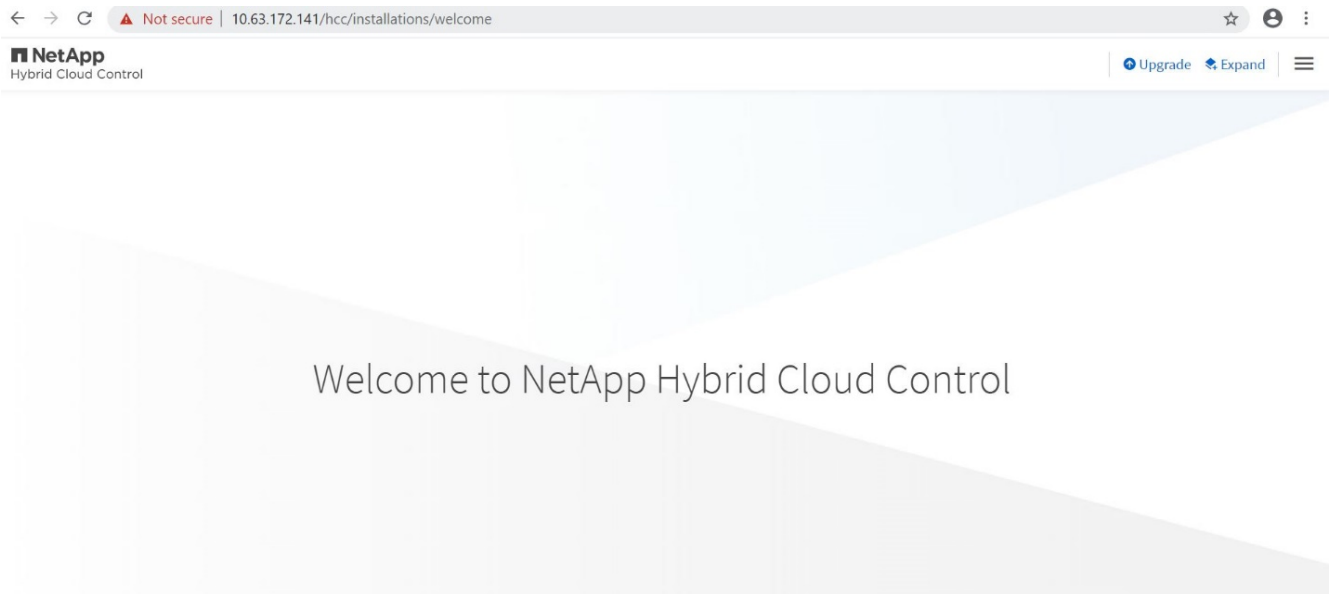
```
[2020-05-21T17:19:53.286687Z]:[config_util:1320] INFO:Validating
credentials for mNode host.
[2020-05-21T17:19:53.316270Z]:[config_util:1232] INFO:Checking Cluster
information.
[2020-05-21T17:19:53.380168Z]:[config_util:112] INFO:Cluster credentials
verification successful.
[2020-05-21T17:19:53.380665Z]:[config_util:1252] INFO:Cluster version
check successful.
[2020-05-21T17:19:53.458271Z]:[config_util:112] INFO:Successfully
queried system configuration
[2020-05-21T17:19:53.463611Z]:[config_util:497] INFO:CIDR range
172.16.0.0/22 open. Using for docker ingress.
[2020-05-21T17:19:53.464179Z]:[mnodcfg:141] INFO:Configuring mNode
[2020-05-21T17:19:53.464687Z]:[config_util:194] INFO:Wait for ping of
127.0.0.1 to succeed
[2020-05-21T17:19:53.475619Z]:[mnodcfg:145] INFO:Validating the
supplied MNode network configuration
[2020-05-21T17:19:53.476119Z]:[mnodcfg:155] INFO:Testing the MNode
network configuration
[2020-05-21T17:19:53.476687Z]:[config_util:353] INFO:Testing network
connection to storage MVIP: 10.63.172.140
[2020-05-21T17:19:53.477165Z]:[config_util:194] INFO:Wait for ping of
10.63.172.140 to succeed
[2020-05-21T17:19:53.488045Z]:[config_util:356] INFO:Successfully
reached storage MVIP: 10.63.172.140
[2020-05-21T17:19:53.488569Z]:[mnodcfg:158] INFO:Configuring MNode
storage (this can take several minutes)
[2020-05-21T17:19:57.057435Z]:[config_util:536] INFO:Configuring MNode
storage succeeded.
[2020-05-21T17:19:57.057938Z]:[config_util:445] INFO:Replacing default
ingress network.
[2020-05-21T17:19:57.078685Z]:[mnodcfg:163] INFO:Extracting services
tar (this can take several minutes)
[2020-05-21T17:20:36.066185Z]:[config_util:1282] INFO:Extracting
services tar succeeded
[2020-05-21T17:20:36.066808Z]:[mnodcfg:166] INFO:Configuring MNode
authentication
[2020-05-21T17:20:36.067950Z]:[config_util:1485] INFO:Updating element-
auth configuration
[2020-05-21T17:20:41.581716Z]:[mnodcfg:169] INFO:Deploying MNode
services (this can take several minutes)
[2020-05-21T17:20:41.810264Z]:[config_util:557] INFO:Deploying MNode
services succeeded
[2020-05-21T17:20:41.810768Z]:[mnodcfg:172] INFO:Deploying MNode Assets
[2020-05-21T17:20:42.162081Z]:[config_util:122] INFO:Retrying 1/45
time...
```

```

[2020-05-21T17:20:42.162640Z]:[config_util:125] INFO:Waiting 10 seconds
before next attempt.
[2020-05-21T17:20:52.199224Z]:[config_util:112] INFO:Mnode is up!
[2020-05-21T17:20:52.280329Z]:[config_util:112] INFO:Root asset created.
[2020-05-21T17:20:52.280859Z]:[config_util:122] INFO:Retrying 1/5
time...
[2020-05-21T17:20:52.281280Z]:[config_util:125] INFO:Waiting 10 seconds
before next attempt.
[2020-05-21T17:21:02.299565Z]:[config_util:112] INFO:Successfully
queried storage assets
[2020-05-21T17:21:02.696930Z]:[config_util:112] INFO:Storage asset
created.
[2020-05-21T17:21:03.238455Z]:[config_util:112] INFO:Storage asset
registered.
[2020-05-21T17:21:03.241966Z]:[mnodecfg:175] INFO:Attempting to set up
VCP-SIOC credentials
[2020-05-21T17:21:03.242659Z]:[config_util:953] INFO:No VCP-SIOC
credential given from NDE. Using default credentials for VCP-SIOC
service.
[2020-05-21T17:21:03.243117Z]:[mnodecfg:185] INFO:Configuration
Successfully Completed

```

- Using a browser, log into the management node GUI using <https://<mNodeIP>>. mNode or Hybrid Cloud Control facilitates expansion, monitoring, and upgrading the Element cluster.



- Click the three parallel lines on the top right and click View Active IQ. Search for the HCI storage cluster by filtering the cluster name and make sure that it is logging the most recent updates.

Dashboard

Alerts

Capacity Licensing

Overview Performance Details Capacity Details Cluster Stats



Columns



Filter



Company	Cluster	Cluster ID	Version	Nodes	Volumes	Efficiency	Used Block Capacity %	Faults	SVIP	MVIP	Last Update
NetApp Inc.	RHV-Store	1913154	12.0.0.333	4	2	149.4x	0.2%	0	172.21.87.140	10.63.172.140	2020-05-21 10:28:56

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