



7. Deploy the NetApp mNode: NetApp HCI with RHV

HCI

Dorian Henderson
July 08, 2020

This PDF was generated from https://docs.netapp.com/us-en/hci-solutions/redhat_virtualization_7_deploy_the_netapp_mnode.html on July 31, 2020. Always check docs.netapp.com for the latest.

Table of Contents

7. Deploy the NetApp mNode: NetApp HCI with RHV 1

7. Deploy the NetApp mNode: NetApp HCI with RHV

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

<div>Image Direct LUN Cinder Managed Block</div>		
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	Default	
Storage Domain	data_domain (1784 GiB free of 1907 GiB)	
Allocation Policy	Thin Provision	
Disk Profile	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 ✕

Image Direct LUN Cinder Managed Block

	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"/>		

4. 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 ▾

Data Center: 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)

Edit + -

Instantiate VM network interfaces by picking a vNIC profile.

nic1

ovirtmgmt/ovirtmgmt ▾

-

nic2

storagenet/storagenet ▾

+ -

Hide Advanced Options

OK Cancel

5. 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

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster

Template

Operating System

Instance Type

Optimized for

Memory Size

Maximum memory

Physical Memory Guaranteed

Total Virtual CPUs

Advanced Parameters

General

Hardware Clock Time Offset

☐ Provide custom serial number policy

Default

Blank | (0)

Other OS

Custom

Server

12288 MB

49152 MB

12288 MB

6

default: (GMT+00:00) GMT Standard Time

Hide Advanced Options

OK

Cancel

6. 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

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options >

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster

Default

Data Center: Default

Template

Blank | (0)

Operating System

Other OS

Instance Type

Custom

Optimized for

Server

Boot Sequence:

First Device

CD-ROM

Second Device

Hard Disk

☒ Attach CD

solidfire-fdva-sodium-patch5-11.5.0

↺

☐ Enable menu to select boot device

Hide Advanced Options

OK

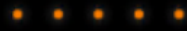
Cancel

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

- 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

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options >

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster

Template

Operating System

Instance Type

Optimized for

Boot Sequence:

First Device

Second Device

☐ Attach CD

solidfire-fdva-magnesium-12.0.0.333

☐ Enable menu to select boot device

Default

Data Center: Default

Blank | (0)

Other OS

Custom

Server

CD-ROM

Hard Disk

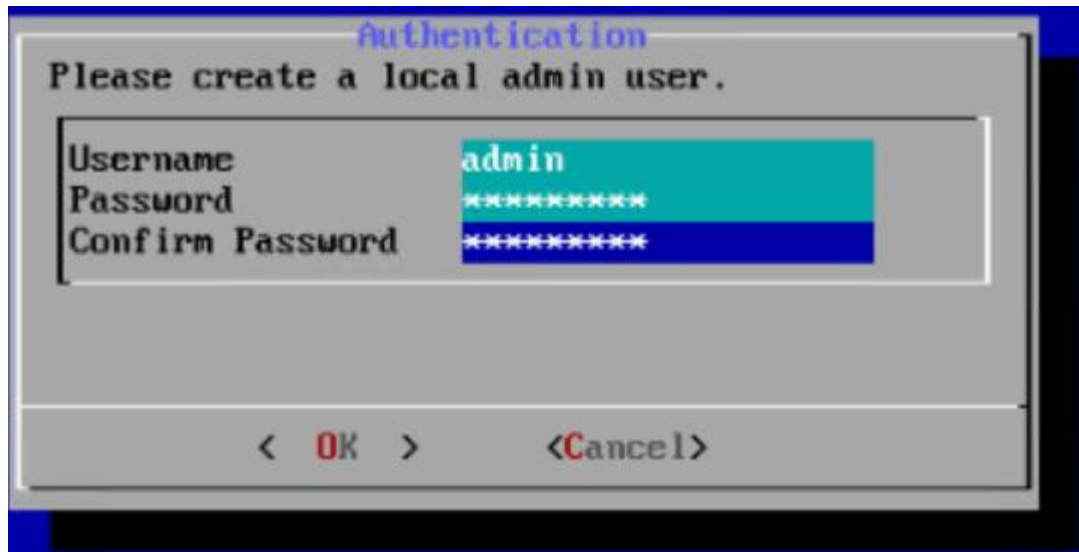
OK

Cancel

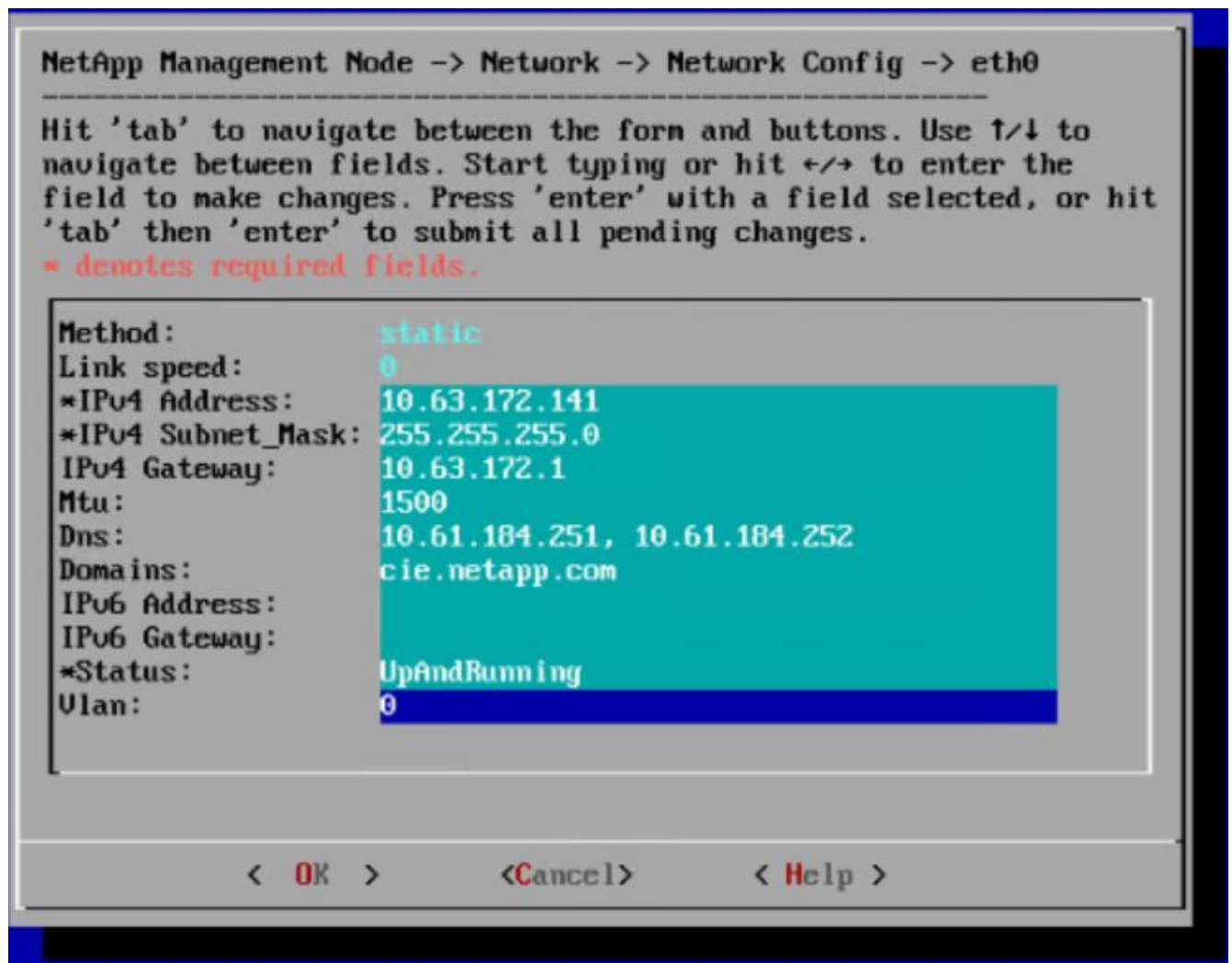
9. Power on the mNode VM. Using the terminal user interface (TUI), create a management node admin user.



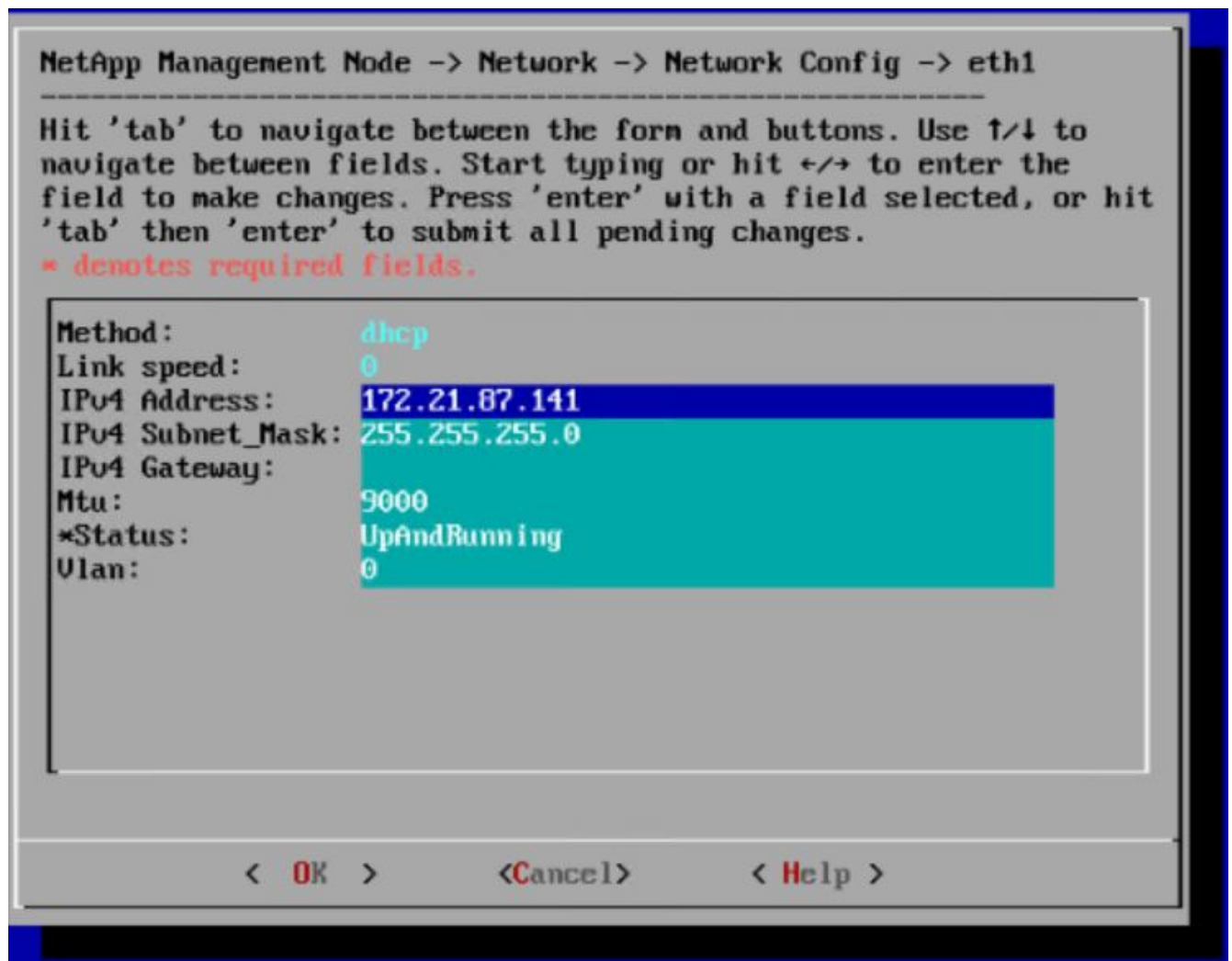
To move through the menu options, press the Up or Down arrow keys. To move through the buttons, press Tab. To move from the buttons to the fields, press Tab. To navigate between fields, press the Up or Down arrow keys.



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.

13. 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]:[mnodecfg: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]:[mnodecfg:145] INFO:Validating the supplied MNode network configuration

[2020-05-21T17:19:53.476119Z]:[mnodecfg: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]:[mnodecfg: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]:[mnodecfg: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]:[mnodecfg: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]:[mnodecfg: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]:[mnodecfg: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...

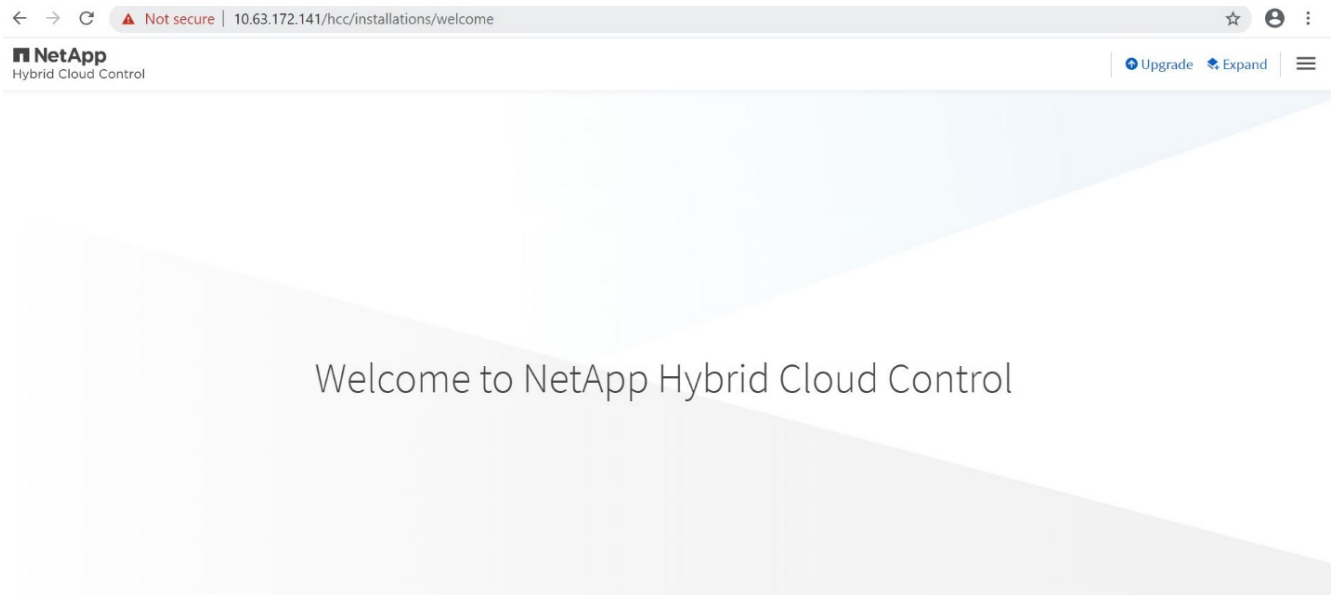
[2020-05-21T17:20:52.281280Z]:[config_util:125] INFO:Waiting 10 seconds before next attempt.

[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
```

14. 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.



15. 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.

Active IQ

All Clusters View

Select a Cluster

Admin

Network Appliance, Inc

kulkarnn

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

Copyright Information

Copyright © 2020 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.