



Post-deployment tasks

HCI

NetApp
May 23, 2023

Table of Contents

- Post-deployment tasks 1
 - Post-deployment tasks overview 1
 - Ensure Rancher Support parity 1
 - Improve Rancher VM resiliency 1
 - Enable monitoring 2
 - Install Trident 2
 - Enable Trident support for user clusters 5

Post-deployment tasks

Post-deployment tasks overview

After you deploy Rancher on NetApp HCI, you should continue with post-deployment activities.

- [Ensure Rancher Support parity](#)
- [Improve Rancher VM resiliency](#)
- [Configure monitoring](#)
- [Install Trident](#)
- [Enable Trident support for user clusters](#)

Find more information

- [Rancher documentation about architecture](#)
- [Kubernetes terminology for Rancher](#)
- [NetApp Element Plug-in for vCenter Server](#)
- [NetApp HCI Resources page](#)

Ensure Rancher Support parity

After you deploy Rancher on NetApp HCI, you need to ensure that the number of Rancher Support cores you purchased matches the number of CPU cores you are using for Rancher management VMs and user clusters.

If you purchased Rancher Support for only part of your NetApp HCI compute resources, you need to take action in VMware vSphere to ensure that Rancher on NetApp HCI and its managed user clusters are only running on hosts for which you have purchased Rancher Support. See the VMware vSphere documentation for information about how to help ensure this by confining compute workloads to specific hosts.

Find more information

- [vSphere HA and DRS Affinity Rules](#)
- [Create VM Anti-Affinity Rules](#)
- [Rancher documentation about architecture](#)
- [Kubernetes terminology for Rancher](#)
- [NetApp Element Plug-in for vCenter Server](#)
- [NetApp HCI Resources page](#)

Improve Rancher VM resiliency

After you deploy Rancher on NetApp HCI, your vSphere environment will contain three new nodes as virtual machines to host the Rancher environment. The Rancher web UI is

available from each of these nodes. For full resiliency, each of the three virtual machines along with the corresponding virtual disks should reside on a different physical host after events like power cycles and failovers.

To ensure that each VM and its resources remain on a different physical host, you can create VMware vSphere Distributed Resource Scheduler (DRS) anti-affinity rules. This is not automated as part of Rancher on NetApp HCI deployment.

For instructions on how to configure DRS anti-affinity rules, see the following VMware documentation resources:

[Create VM Anti-Affinity Rules](#)

[vSphere HA and DRS Affinity Rules](#)

Find more information

- [Rancher documentation about architecture](#)
- [Kubernetes terminology for Rancher](#)
- [NetApp Element Plug-in for vCenter Server](#)
- [NetApp HCI Resources page](#)

Enable monitoring

After you deploy Rancher on NetApp HCI, You can enable Active IQ storage monitoring (for SolidFire all-flash storage and NetApp HCI) and NetApp HCI compute monitoring (for NetApp HCI only) if you did not already do so during installation or upgrade.

For instructions on how to enable monitoring, see [Enable Active IQ and NetApp HCI monitoring](#).

Find more information

- [Rancher documentation about architecture](#)
- [Kubernetes terminology for Rancher](#)
- [NetApp Element Plug-in for vCenter Server](#)
- [NetApp HCI Resources page](#)

Install Trident

Learn about how to install Trident after you install Rancher on NetApp HCI. Trident is a storage orchestrator, which integrates with Docker and Kubernetes, as well as platforms built on these technologies, such as Red Hat OpenShift, Rancher, and IBM Cloud Private. The goal of Trident is to make the provisioning, connection, and consumption of storage transparent and frictionless for the applications. Trident is a fully supported open source project maintained by NetApp. Trident enables you to create, manage, and interact with persistent storage volumes in the standard Kubernetes format that you are familiar with.



For more information about Trident, see the [Trident documentation](#).

What you'll need

- You have installed Rancher on NetApp HCI.
- You have deployed your user clusters.
- You have configured your user cluster networks for Trident. See [Enable Trident support for user clusters](#) for instructions.
- You have completed the necessary prerequisite steps for work node preparation for Trident. See the [Trident documentation](#).

About this task

The Trident installer catalog is installed as part of the Rancher installation using NetApp Hybrid Cloud Control. In this task, you use the installer catalog to install and configure Trident.

As part of the Rancher installation, NetApp provides a node template. If you are not planning to use the node template that NetApp provides, and you want to provision on RHEL or CentOS, there might be additional requirements. If you change your worker node to RHEL or CentOS, there are several prerequisites that should be met. See the [Trident documentation](#).

Steps

1. From the Rancher UI, select a project for your user cluster.




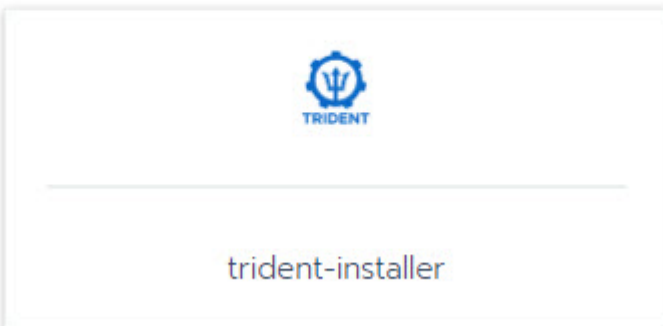
For information about projects and namespaces, see the [Rancher documentation](#).

2. Select **Apps**, and select **Launch**.



3. On the **Catalog** page, select the Trident installer.

netapp-trident 



On the page that opens, you can select the **Detailed Descriptions** arrow to learn more about the Trident app and also to find the link to the [Trident documentation](#).

4. Select the **Configurations Options** arrow, and enter the credentials and storage configuration information.

Storage Tenant *	SVIP *
<input type="text" value="NetApp-HCI"/>	<input type="text" value=""/>
<small>The name of the tenant that is already present on the SolidFire AFA.</small>	<small>The virtual/cluster IP address for data (I/O).</small>
MVIP *	Trident Backend Name *
<input type="text" value=""/>	<input type="text" value="solidfire"/>
<small>The virtual/cluster IP address for management.</small>	<small>The name of this Trident backend configuration.</small>
Trident Storage Driver *	
<input type="text" value="solidfire-san"/>	
<small>The name of the Trident storage driver.</small>	



The default storage tenant is NetApp HCI. You can change this value. You can also change the backend name. However, do not change the default storage driver value, which is **solidfire-san**.

5. Select **Launch**.

This installs the Trident workload on the **trident** namespace.

6. Select **Resources > Workloads**, and verify that the **trident** namespace includes the following components:

Namespace: trident		
<input type="checkbox"/>	▶ Active	trident-csi
<input type="checkbox"/>	▶ Active	trident-csi
<input type="checkbox"/>	▶ Active	trident-installer
<input type="checkbox"/>	▶ Active	trident-operator

7. (Optional) Select **Storage** for the user cluster to see the storage classes that you can use for your persistent volumes.



The three storage classes are **solidfire-gold**, **solidfire-silver**, and **solidfire-bronze**. You can make one of these storage classes the default by selecting the icon under the **Default** column.

Find more information

- [Enable Trident support for user clusters](#)
- [Rancher documentation about architecture](#)
- [Kubernetes terminology for Rancher](#)
- [NetApp Element Plug-in for vCenter Server](#)

Enable Trident support for user clusters

If your NetApp HCI environment does not have a route between the management and storage networks, and you deploy user clusters that need Trident support, you need to further configure your user cluster networks after installing Trident. For each user cluster, you need to enable communication between the management and storage networks. You can do this by modifying the networking configuration for each node in the user cluster.

About this task

Follow these general steps to modify the networking configuration for each node in the user cluster. These steps assume that you created the user cluster with the default node template that is installed with Rancher on NetApp HCI.



You can make these changes as part of a custom node template to use for future user clusters.

Steps

1. Deploy a user cluster with existing default template.
2. Connect the storage network to the user cluster.
 - a. Open the VMware vSphere web client for the connected vCenter instance.
 - b. In the Hosts and Clusters inventory tree, select a node in the newly deployed user cluster.
 - c. Edit the node's settings.
 - d. In the settings dialog, add a new network adapter.
 - e. In the **New Network** drop down list, browse for a network and select **HCI_Internal_Storage_Data_Network**.
 - f. Expand the network adapter section and record the MAC address for the new network adapter.
 - g. Click **OK**.
3. In Rancher, download the SSH private key file for each node in the user cluster.
4. Connect using SSH to a node in the user cluster, using the private key file that you have downloaded for that node:

```
ssh -i <private key filename> <ip address>
```

5. As the superuser, edit and save the `/etc/netplan/50-cloud-init.yaml` file so that it includes the `ens224` section, similar to the following example. Replace `<MAC address>` with the MAC address you recorded earlier:

```
network:
  ethernets:
    ens192:
      dhcp4: true
      match:
        macaddress: 00:50:56:91:1d:41
        set-name: ens192
    ens224:
      dhcp4: true
      match:
        macaddress: <MAC address>
        set-name: ens224
  version: 2
```

6. Use the following command to reconfigure the network:

```
`netplan try`
```

7. Repeat steps 4 through 6 for each remaining node in the user cluster.
8. When you have reconfigured the network for each node in the user cluster, you can deploy applications in the user cluster that utilize Trident.

Copyright information

Copyright © 2023 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.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

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.