Install using tridentctl

Trident

NetApp
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You can install Trident using `tridentctl`. This process applies to installations where the container images required by Trident are stored either in a private registry or not. To customize your `tridentctl` deployment, refer to Customize tridentctl deployment.

Critical information about Trident10

You must read the following critical information about Trident.

Critical information about Trident

- Kubernetes 1.27 is now supported in Trident. Upgrade Trident prior to upgrading Kubernetes.
- Trident strictly enforces the use of multipathing configuration in SAN environments, with a recommended value of `find_multipaths: no` in multipath.conf file.

  Use of non-multipathing configuration or use of `find_multipaths: yes` or `find_multipaths: smart` value in multipath.conf file will result in mount failures. Trident has recommended the use of `find_multipaths: no` since the 21.07 release.

Install Trident using `tridentctl`

Review the installation overview to ensure you've met installation prerequisites and selected the correct installation option for your environment.

Before you begin

Before you begin installation, log in to the Linux host and verify it is managing a working, supported Kubernetes cluster and that you have the necessary privileges.

With OpenShift, use `oc` instead of `kubectl` in all of the examples that follow, and log in as **system:admin** first by running `oc login -u system:admin` or `oc login -u kube-admin`.

1. Verify your Kubernetes version:

```
kubectl version
```

2. Verify cluster administrator privileges:

```
kubectl auth can-i '*' '*' --all-namespaces
```

3. Verify you can launch a pod that uses an image from Docker Hub and reach your storage system over the pod network:

```
kubectl run -i --tty ping --image=busybox --restart=Never --rm -- \
  ping <management IP>
```

Step 1: Download the Trident installer package

The Trident installer package creates a Trident pod, configures the CRD objects that are used to maintain its state, and initializes the CSI sidecars to perform actions such as provisioning and attaching volumes to the cluster hosts. Download and extract the latest version of the Trident installer from the *Assets* section on GitHub. Update *<trident-installer-XX.XX.X.tar.gz>* in the example with your selected Trident version.

```
wget https://github.com/NetApp/trident/releases/download/v26.02.0/trident-
installer-26.02.0.tar.gz
tar -xf trident-installer-26.02.0.tar.gz
cd trident-installer
```

Step 2: Install Trident

Install Trident in the desired namespace by executing the `tridentctl install` command. You can add additional arguments to specify image registry location.

Standard mode

```
./tridentctl install -n trident
```

Images in one registry

```
./tridentctl install -n trident --image-registry <your-registry>
--autosupport-image <your-registry>/trident-autosupport:26.02 --trident
-image <your-registry>/trident:26.02.0
```

Images in different registries

```
./tridentctl install -n trident --image-registry <your-registry>
--autosupport-image <your-registry>/trident-autosupport:26.02 --trident
-image <your-registry>/trident:26.02.0
```

Your installation status should look something like this.

```
....
INFO Starting Trident installation.                namespace=trident
INFO Created service account.
INFO Created cluster role.
INFO Created cluster role binding.
INFO Added finalizers to custom resource definitions.
INFO Created Trident service.
INFO Created Trident secret.
INFO Created Trident deployment.
INFO Created Trident daemonset.
INFO Waiting for Trident pod to start.
INFO Trident pod started.                          namespace=trident
pod=trident-controller-679648bd45-cv2mx
INFO Waiting for Trident REST interface.
INFO Trident REST interface is up.                 version=26.10.0
INFO Trident installation succeeded.
....
```

Verify the installation

You can verify your installation using pod creation status or `tridentctl`.

Using pod creation status

You can confirm if the Trident installation completed by reviewing the status of the created pods:

```
kubectl get pods -n trident

NAME                                  READY   STATUS    RESTARTS   AGE
trident-controller-679648bd45-cv2mx   6/6     Running   0          5m29s
trident-node-linux-vgc8n              2/2     Running   0          5m29s
```

If the installer does not complete successfully or `trident-controller-<generated id>` (`trident-csi-<generated id>` in versions prior to 23.01) does not have a **Running** status, the platform was not installed. Use `-d` to turn on debug mode and troubleshoot the issue.

Using `tridentctl`

You can use `tridentctl` to check the version of Trident installed.

```
./tridentctl -n trident version

+----------------+----------------+
| SERVER VERSION | CLIENT VERSION |
+----------------+----------------+
| 26.02.0        | 26.02.0        |
+----------------+----------------+
```

Sample configurations

The following examples provide sample configurations for installing Trident using `tridentctl`.

Windows nodes

To enable Trident to run on Windows nodes:

```
tridentctl install --windows -n trident
```

Force detach

For information, see Automating the failover of stateful applications with Trident.

```
tridentctl install --enable-force-detach=true -n trident
```

Enable concurrent Trident controller operations

To enable concurrent Trident controller operations for improved throughput, add the `--enable-concurrency` option during the installation as shown in this example.

> **Tech Preview**: This feature is experimental and currently supports limited parallel workflows with the ONTAP-NAS (NFS only) and ONTAP-SAN (NVMe for unified ONTAP 9) drivers, in addition to the existing tech preview for the ONTAP-SAN driver (iSCSI and FCP protocols in unified ONTAP 9).

```
tridentctl install --enable-concurrency -n trident
```

Customize tridentctl installation

You can use the Trident installer to customize installation.

Learn about the installer

The Trident installer enables you to customize attributes. For example, if you have copied the Trident image to a private repository, you can specify the image name by using `--trident-image`. If you have copied the Trident image as well as the needed CSI sidecar images to a private repository, it might be preferable to specify the location of that repository by using the `--image-registry` switch, which takes the form `<registry FQDN>[:port]`.

> When installing Trident in a private repository, if you are using the `--image-registry` switch to specify the repository location, do not use `/netapp/` in the repository path. For example: `./tridentctl install --image-registry <image-registry> -n <namespace>`

If you are using a distribution of Kubernetes, where `kubelet` keeps its data on a path other than the usual `/var/lib/kubelet`, you can specify the alternate path by using `--kubelet-dir`.

If you need to customize the installation beyond what the installer's arguments allow, you can also customize the deployment files. Using the `--generate-custom-yaml` parameter creates the following YAML files in the installer's `setup` directory:

- `trident-clusterrolebinding.yaml`
- `trident-deployment.yaml`
- `trident-crds.yaml`
- `trident-clusterrole.yaml`
- `trident-daemonset.yaml`
- `trident-service.yaml`
- `trident-namespace.yaml`
- `trident-serviceaccount.yaml`

- `trident-resourcequota.yaml`
  *

After you have generated these files, you can modify them according to your needs and then use `--use-custom-yaml` to install your custom deployment.

```
./tridentctl install -n trident --use-custom-yaml
```

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