Cluster Essentials for VMware Tanzu

Cluster Essentials for VMware Tanzu 1.2

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https://docs.vmware.com/

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Contents

Deploying Cluster Essentials v1.2

This topic tells you how to install, upgrade, and uninstall Cluster Essentials v1.2.

Supported Kubernetes versions

Installation requires Kubernetes cluster v1.20, v1.21, v1.22, v1.23, or v1.24 on one of the following Kubernetes providers:

- Azure Kubernetes Service
- Amazon Elastic Kubernetes Service
- Google Kubernetes Engine
- Minikube
- Kind

Supported Platforms

The Cluster Essentials install script can only be run on MacOS and Linux.

Install

If you are using a VMware Tanzu Kubernetes Grid cluster, you do not need to install Cluster Essentials because the contents of Cluster Essentials are already installed on your cluster.

For all other clusters, install Cluster Essentials using the following steps.

Download artifacts from Tanzu Network

1. Sign in to Tanzu Network.
2. Go to Cluster Essentials for VMware Tanzu on VMware Tanzu Network.
3. Accept or confirm that you have accepted the EULA for the product
4. Select a download according to your Kubernetes provider and operating system:
   - For macOS, download `tanzu-cluster-essentials-darwin-amd64-1.2.0.tgz`.
   - For Linux, download `tanzu-cluster-essentials-linux-amd64-1.2.0.tgz`.
5. Unpack the TAR file into the `tanzu-cluster-essentials` directory:

   ```
   mkdir $HOME/tanzu-cluster-essentials
   tar -xvf DOWNLOADED-CLUSTER-ESSENTIALS-BUNDLE -C $HOME/tanzu-cluster-essentials
   ```

   Where `DOWNLOADED-CLUSTER-ESSENTIALS-BUNDLE` is the name of the bundle you downloaded.

Set Kubernetes cluster context

1. List the existing contexts by running:

```
kubectl config get-contexts
```

2. Set the context to the cluster that you want to use for the Cluster Essentials install.

```
kubectl config use-context CONTEXT-NAME
```

Where `CONTEXT-NAME` can be retrieved from the outputs of the previous step.

Deploy onto cluster

1. (Optional) If your registry needs a custom certificate, you must load that configuration into the cluster before installing `kapp-controller`. If your registry uses a public certificate, this step is not required.

Create the `kapp-controller` namespace:

```
kubectl create namespace kapp-controller
```

Create a configuration secret by using the registry's `ca.crt` stored on local disk:

```
kubectl create secret generic kapp-controller-config \
   --namespace kapp-controller \
   --from-file caCerts=ca.crt
```

2. Configure and run `install.sh`, which will install `kapp-controller` and `secretgen-controller` on your cluster:

   - For online installation, run:

```
export INSTALL_BUNDLE=registry.tanzu.vmware.com/tanzu-cluster-essentials/
cluster-essentials-bundle@sha256:e00f33b92d418f49b1af79f42cb13d6765f1c8c7
31f4528dfff8343af042dc3e
export INSTALL_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
export INSTALL_REGISTRY_USERNAME=TANZU-NET-USER
export INSTALL_REGISTRY_PASSWORD=TANZU-NET-PASSWORD
cd $HOME/tanzu-cluster-essentials
./install.sh --yes
```

   Where `TANZU-NET-USER` and `TANZU-NET-PASSWORD` are your credentials for VMware Tanzu Network.

   - For air-gapped installation, run:

```
$ IMGPKG_REGISTRY_HOSTNAME=registry.tanzu.vmware.com \
  IMGPKG_REGISTRY_USERNAME=TANZUNET-REGISTRY-USERNAME \
  IMGPKG_REGISTRY_PASSWORD=TANZUNET-REGISTRY-PASSWORD \
  imgpkg copy \
    -b registry.tanzu.vmware.com/tanzu-cluster-essentials/cluster-essenti
als-bundle@sha256:e00f33b92d418f49b1af79f42cb13d6765f1c8c731f4528dfff8343
af042dc3e \
```

```
      --to-tar cluster-essentials-bundle-1.2.0.tar \
      --include-non-distributable-layers

$ IMGPKG_REGISTRY_HOSTNAME=MY-REGISTRY \
  IMGPKG_REGISTRY_USERNAME=MY-REGISTRY-USER \
  IMGPKG_REGISTRY_PASSWORD=MY-REGISTRY-PASSWORD \
  imgpkg copy \
    --tar cluster-essentials-bundle-1.2.0.tar \
    --to-repo CUSTOMER-REGISTRY-HOSTNAME/cluster-essentials-bundle \
    --include-non-distributable-layers \
    --registry-ca-cert-path CA_PATH
$ INSTALL_BUNDLE=CUSTOMER-REGISTRY-HOSTNAME/cluster-essentials-bundle@sha
256:e00f33b92d418f49b1af79f42cb13d6765f1c8c731f4528dfff8343af042dc3e \
  INSTALL_REGISTRY_HOSTNAME=MY-REGISTRY \
  INSTALL_REGISTRY_USERNAME=MY-REGISTRY-USER \
  INSTALL_REGISTRY_PASSWORD=MY-REGISTRY-PASSWORD \
  ./install.sh
```

Where:

- `TANZUNET-REGISTRY-USERNAME` is your username of the VMware Tanzu Network.

- `TANZUNET-REGISTRY-PASSWORD` is your password of the VMware Tanzu Network.

- `MY-REGISTRY` is your air-gapped container registry.

- `MY-REGISTRY-USER` is the user with write access to `MY-REGISTRY`.

- `MY-REGISTRY-PASSWORD` is the password for `MY-REGISTRY-USER`.

Optionally install CLIs onto your `$PATH`

1. (Optional) Several Tanzu products, such as Tanzu Application Platform, use the `kapp` CLI to deploy. For convenience, you may install the `kapp` CLI onto your `$PATH`:

   ```
   sudo cp $HOME/tanzu-cluster-essentials/kapp /usr/local/bin/kapp
   ```

2. (Optional) Several Tanzu products, such as Tanzu Application Platform, use the `imgpkg` CLI to relocate packages. For convenience, you may install the `imgpkg` CLI onto your `$PATH`:

   ```
   sudo cp $HOME/tanzu-cluster-essentials/imgpkg /usr/local/bin/imgpkg
   ```

Upgrade

Cluster Essentials components (such as `kapp-controller` and `secretgen-controller`) cannot be upgraded on clusters provisioned using VMware Tanzu Kubernetes Grid, Tanzu Community Edition, and VMware Tanzu Mission Control.

For all other clusters, if you already have Cluster Essentials 1.0+ installed on your target cluster, you can upgrade to Cluster Essentials 1.2 using the following steps. Running this upgrade will update the `kapp-controller` version on your cluster to `v0.38.4` and `secretgen-controller` version to `v0.9.1`.

1. Follow the steps above to Download artifacts from Tanzu Network and Set Kubernetes cluster

context

2. Configure and run `install.sh`, which will install `kapp-controller` and `secretgen-controller` on your cluster:

```
export INSTALL_BUNDLE=registry.tanzu.vmware.com/tanzu-cluster-essentials/cluste
r-essentials-bundle@sha256:e00f33b92d418f49b1af79f42cb13d6765f1c8c731f4528dfff8
343af042dc3e
export INSTALL_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
export INSTALL_REGISTRY_USERNAME=TANZU-NET-USER
export INSTALL_REGISTRY_PASSWORD=TANZU-NET-PASSWORD
cd $HOME/tanzu-cluster-essentials
./install.sh --yes
```

Where `TANZU-NET-USER` and `TANZU-NET-PASSWORD` are your credentials for VMware Tanzu Network.

3. Follow the steps above to optionally install newer versions of the `kapp` and `imgpkg` CLIs to your path

Rollback

> ⚠️ **Caution**
>
> Uninstalling Cluster Essentials when the upgrade fails will cause an unrepairable state for your cluster.

To rollback to the previously installed version, follow the previous version of Cluster Essentials deployment instructions.

Uninstall

> ⚠️ **Caution**
>
> Uninstalling Cluster Essentials when the installation fails will cause an unrepairable state for your cluster.
>
> You must uninstall all the Custom Resources created by `kapp-controller` and `secretgen-controller` before running the uninstall script for Cluster Essentials.

1. Follow the steps above to Set Kubernetes cluster context

2. Run `uninstall.sh`, which will uninstall `kapp-controller` and `secretgen-controller` on your cluster:

```
cd $HOME/tanzu-cluster-essentials
./uninstall.sh --yes
```

Cluster Essentials Release notes

This topic contains release notes for Cluster Essentials for VMware Tanzu. A new minor release for Cluster Essentials is publish every quarter. Monthly patch releases are published to address critical bugs and CVEs, if there are any.

v1.2.0

Release Date: July 11, 2022

New features

- Updating **kapp-controller to v0.38.4**. Some highlights from this release are listed below. A full list of new features can be found in the open source release notes.
    - Add support for Kubernetes 1.24
    - PackageRepositories support having identical packages from multiple different repositories
    - Remove support for Helm v2
    - kapp-controller will now wait indefinitely for APIService resource to succeed
    - kapp-controller will now keep a maximum of 5 app changes by default
- Updating **secretgen-controller to v0.9.1**
    - SecretTemplate API: SecretTemplate resources introduce a highly flexible way of telling secretgen-controller to populate a single secret from fields in any other resource on the cluster selected via JSONpath.
- Updating Carvel CLIs
    - imgpkg to v0.29.0
    - kbld to v0.34.0
    - ytt to v0.41.1
    - kapp to v0.49.0

v1.1.0

Release Date: April 5, 2022

New features

- Updating **kapp-controller to v0.34.0**. This update brings in significant performance

improvements when running large Package Repositories. A full list of new features can be found in the open source release notes.

- Updating **secretgen-controller to v0.8.0**