Cluster Essentials for VMware Tanzu

Cluster Essentials for VMware Tanzu 1.3

You can find the most up-to-date technical documentation on the VMware website at:

https://docs.vmware.com/

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Contents

Deploying Cluster Essentials v1.3.5

This topic tells you how to install, upgrade, and uninstall Cluster Essentials v1.3.5.

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
- Red Hat OpenShift v4.10 running on vSphere and baremetal clusters
- Minikube
- Kind

Supported Platforms

The Cluster Essentials install script can only be run on MacOS, Windows 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-amd64-1.3.5.tgz`.

    - For Linux, download `tanzu-cluster-essentials-linux-amd64-1.3.5.tgz`.

    - For Windows, download `tanzu-cluster-essentials-windows-amd64-1.3.5.tgz`.

5. Unpack the TAR file into the `tanzu-cluster-essentials` directory:

    On macOS or Linux:

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

On Windows (in "Command Prompt" app):

```
:: Ensure you are in the directory where you have downloaded DOWNLOADED-CLUSTER
-ESSENTIALS-BUNDLE
mkdir tanzu-cluster-essentials
tar -xvf DOWNLOADED-CLUSTER-ESSENTIALS-BUNDLE -C 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
```

On macOS or Linux

1. 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@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969
b69073fa60dfebc9a54cb419
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@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969b69073fa60dfebc
9a54cb419 \
    --to-tar cluster-essentials-bundle-1.3.5.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-1.3.5.tar \
    --to-repo MY-REGISTRY/cluster-essentials-bundle \
    --include-non-distributable-layers \
    --registry-ca-cert-path CA_PATH

$ INSTALL_BUNDLE=MY-REGISTRY/cluster-essentials-bundle@sha256:13a3feb60af
97d2a90d66bb360192d1d20bcd969b69073fa60dfebc9a54cb419 \
  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`.

On Windows

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

   - For online installation, run:

```
cd tanzu-cluster-essentials

set INSTALL_BUNDLE=registry.tanzu.vmware.com/tanzu-cluster-essentials/clu
```

```
ster-essentials-bundle@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969b69
073fa60dfebc9a54cb419
set INSTALL_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
set INSTALL_REGISTRY_USERNAME=TANZU-NET-USER
set /p INSTALL_REGISTRY_PASSWORD=password:
:: Interactively enter TANZU-NET-PASSWORD


install.bat
```

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

⬦ For air-gapped installation, run:

```
cd tanzu-cluster-essentials

set IMGPKG_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
set IMGPKG_REGISTRY_USERNAME=TANZUNET-REGISTRY-USERNAME
set /p IMGPKG_REGISTRY_PASSWORD=password:
:: Interactively enter TANZUNET-REGISTRY-PASSWORD
imgpkg copy ^
  -b registry.tanzu.vmware.com/tanzu-cluster-essentials/cluster-essential
s-bundle@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969b69073fa60dfebc9a
54cb419 ^
  --to-tar cluster-essentials-bundle-1.3.5.tar ^
  --include-non-distributable-layers

set IMGPKG_REGISTRY_HOSTNAME=MY-REGISTRY
set IMGPKG_REGISTRY_USERNAME=MY-REGISTRY-USER
set IMGPKG_REGISTRY_PASSWORD=password:
:: Interactive enter MY-REGISTRY-PASSWORD
imgpkg copy ^
  --tar cluster-essentials-bundle-1.3.5.tar ^
  --to-repo MY-REGISTRY/cluster-essentials-bundle ^
  --include-non-distributable-layers ^
  --registry-ca-cert-path CA_PATH

set INSTALL_BUNDLE=MY-REGISTRY/cluster-essentials-bundle@sha256:13a3feb60
af97d2a90d66bb360192d1d20bcd969b69073fa60dfebc9a54cb419
set INSTALL_REGISTRY_HOSTNAME=MY-REGISTRY
set INSTALL_REGISTRY_USERNAME=MY-REGISTRY-USER
set /p INSTALL_REGISTRY_PASSWORD=password:
:: Interactively enter MY-REGISTRY-PASSWORD
install.bat
```

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 1.3 using the following steps. Running this upgrade will update the `kapp-controller` version on your cluster to `v0.41.11` and `secretgen-controller` version to `v0.11.8`.

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:

   On macOS or Linux:

```
cd $HOME/tanzu-cluster-essentials

export INSTALL_BUNDLE=registry.tanzu.vmware.com/tanzu-cluster-essentials/cluste
r-essentials-bundle@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969b69073fa60df
ebc9a54cb419
export INSTALL_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
export INSTALL_REGISTRY_USERNAME=TANZU-NET-USER
export INSTALL_REGISTRY_PASSWORD=TANZU-NET-PASSWORD

./install.sh --yes
```

   On Windows (in "Command Prompt" app):

```
cd tanzu-cluster-essentials

set INSTALL_BUNDLE=registry.tanzu.vmware.com/tanzu-cluster-essentials/cluster-e
ssentials-bundle@sha256:13a3feb60af97d2a90d66bb360192d1d20bcd969b69073fa60dfebc
9a54cb419
set INSTALL_REGISTRY_HOSTNAME=registry.tanzu.vmware.com
set INSTALL_REGISTRY_USERNAME=TANZU-NET-USER
set /p INSTALL_REGISTRY_PASSWORD=password:
:: Interactively enter TANZU-NET-PASSWORD

install.bat
```

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:

   On macOS or Linux:

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

   On Windows (in "Command Prompt" app):

   ```
   cd tanzu-cluster-essentials
   uninstall.bat
   ```

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.

v1.3.5

Release Date: October 31, 2023

Resolved issues

- Updating **kapp-controller to v0.41.11**. This patch release addresses issues identified in v1.3.4. A full list of fixes can be found in the open source release notes.

- Updating **secretgen-controller to v0.11.8**

- Updating Carvel CLIs

    - imgpkg to v0.31.7

    - kbld to v0.35.6

    - ytt to v0.43.6

    - kapp to v0.53.11

v1.3.4

Release Date: October 3, 2023

Resolved issues

- Updating **kapp-controller to v0.41.10_vmware.2**. This patch release addresses issues identified in v1.3.3.

v1.3.3

Release Date: August 31, 2023

Resolved issues

- Updating **kapp-controller to v0.41.10**. This patch release addresses issues identified in v1.3.2. A full list of fixes can be found in the open source release notes.

- Updating **secretgen-controller to v0.11.7**

- Updating Carvel CLIs

- imgpkg to v0.31.6

- kbld to v0.35.5

- ytt to v0.43.5

- kapp to v0.53.10

v1.3.2

Release Date: July 31, 2023

Resolved issues

- Updating **kapp-controller to v0.41.9**. This patch release addresses issues identified in v1.3.1. A full list of fixes can be found in the open source release notes.

v1.3.1

Release Date: June 30, 2023

Resolved issues

- Updating **kapp-controller to v0.41.8**. This patch release addresses issues identified in v1.3.0. A full list of fixes can be found in the open source release notes.

- Updating **secretgen-controller to v0.11.6**

- Updating Carvel CLIs

  - imgpkg to v0.31.5

  - kbld to v0.35.4

  - ytt to v0.43.4

  - kapp to v0.53.8

v1.3.0

Release Date: October 7, 2022

New features

- Adding support for Red Hat OpenShift Container Platform 4.10 running on vSphere and baremetal

- Adding a Windows installer for Cluster Essentials

- Updating **kapp-controller to v0.41.2**. Some highlights from this release are listed below. A full list of new features can be found in the open source release notes.

  - Surface namespace and group-kind of App CR associated resources in App CR status

  - Package authors can now specify that their package can be installed on a certain versions of kapp-controller or Kubernetes

  - Allow configuring minimum app sync period

- Adjust default TLS cipher suites to be restrictive
- [Bug fix] Clean up sidecarexec socket file in case of previous unclean process termination
- Updating **secretgen-controller to v0.11.0**
- Updating Carvel CLIs
  - imgpkg to v0.31.0
  - kbld to v0.35.0
  - ytt to v0.43.0
  - kapp to v0.53.0