

# Get Docker EE for SLES

*Estimated reading time: 12 minutes*

To get started with Docker on SUSE Linux Enterprise Server (SLES), make sure you meet the prerequisites ([/install/linux/docker-ee/suse/#prerequisites](#)), then install Docker ([/install/linux/docker-ee/suse/#install-docker-ee](#)).

## Prerequisites

### Docker EE URL

To install Docker Enterprise Edition (Docker EE), you need to know the Docker EE repository URL associated with your trial or subscription. These instructions work for Docker EE for SLES and for Docker EE for Linux, which includes access to Docker EE for all Linux distributions. To get this information:

- Go to <https://hub.docker.com/my-content> (<https://hub.docker.com/my-content>).
- Each subscription or trial you have access to is listed. Click the **Setup** button for **Docker Enterprise Edition for SUSE Linux Enterprise Server**.
- Copy the URL from the field labeled **Copy and paste this URL to download your Edition**.

Use this URL when you see the placeholder text `<DOCKER-EE-URL>` .

To learn more about Docker EE, see Docker Enterprise Edition (<https://www.docker.com/enterprise-edition/>).

Docker Community Edition (Docker CE) is not supported on SLES.

## OS requirements

To install Docker EE, you need the 64-bit version of SLES 12.x, running on `x86_64` , `s390x` (IBM Z), or `ppc64le` (IBM Power) architectures. Docker EE is not supported on OpenSUSE.

The only supported storage driver for Docker EE on SLES is Btrfs, which is used by default if the underlying filesystem hosting `/var/lib/docker/` is a BTRFS filesystem.

## FIREWALL CONFIGURATION

Docker creates a `DOCKER` iptables chain when it starts. The SUSE firewall may block access to this chain, which can prevent you from running containers with published ports. You may see errors such as the following:

```
WARNING: IPv4 forwarding is disabled. Networking will not work.
docker: Error response from daemon: driver failed programming external
connectivity on endpoint adoring_ptolemy
(0bb5fa80bc476f8a0d343973929bb3b7c039fc6d7cd30817e837bc2a511fce97
):
    (iptables failed: iptables --wait -t nat -A DOCKER -p tcp -d 0/0
--dport 80 -j DNAT --to-destination 172.17.0.2:80 ! -i docker0: iptables:
No chain/target/match by that name.
(exit status 1)).
```

If you see errors like this, adjust the start-up script order so that the firewall is started before Docker, and Docker stops before the firewall stops. See the SLES documentation on init script order ([https://www.suse.com/documentation/sled11/book\\_sle\\_admin/data/sec\\_boot\\_init.html](https://www.suse.com/documentation/sled11/book_sle_admin/data/sec_boot_init.html)).

## Uninstall old versions

Older versions of Docker were called `docker` or `docker-engine`. If you use OS images from a cloud provider, you may need to remove the `runc` package, which conflicts with Docker EE. If these are installed, uninstall them, along with associated dependencies.

```
$ sudo zypper rm docker docker-engine runc
```

If removal of the `docker-engine` package fails, use the following command instead:

```
$ sudo rpm -e docker-engine
```

It's OK if `zypper` reports that none of these packages are installed.

The contents of `/var/lib/docker/`, including images, containers, volumes, and networks, are preserved. The Docker EE package is now called `docker-ee`.

## Configure the Btrfs filesystem

By default, SLES formats the `/` filesystem using Btrfs, so **most people do not need to do the steps in this section**. If you use OS images from a cloud provider, you may need to do this step. If the filesystem that hosts `/var/lib/docker/` is **not** a BTRFS filesystem, you must configure a BTRFS filesystem and mount it on `/var/lib/docker/`.

1. Check whether `/` (or `/var/` or `/var/lib/` or `/var/lib/docker/` if they are separate mount points) are formatted using Btrfs. If you do not have separate mount points for any of these, a duplicate result for `/` is returned.

```
$ df -T / /var /var/lib /var/lib/docker
```

You need to complete the rest of these steps **only if one of the following is true**:

- You have a separate `/var/` filesystem that is not formatted with Btrfs
- You do not have a separate `/var/` or `/var/lib/` or `/var/lib/docker/` filesystem and `/` is not formatted with Btrfs

If `/var/lib/docker` is already a separate mount point and is not formatted with Btrfs, back up its contents so that you can restore them after step 3.

2. Format your dedicated block device or devices as a Btrfs filesystem. This example assumes that you are using two block devices called `/dev/xvdf` and `/dev/xvdg`. **Make sure you are using the right device names.**

⊗ Double-check the block device names because this is a destructive operation.

```
$ sudo mkfs.btrfs -f /dev/xvdf /dev/xvdg
```

There are many more options for Btrfs, including striping and RAID. See the Btrfs documentation ([https://btrfs.wiki.kernel.org/index.php/Using\\_Btrfs\\_with\\_Multiple\\_Devices](https://btrfs.wiki.kernel.org/index.php/Using_Btrfs_with_Multiple_Devices)).

3. Mount the new Btrfs filesystem on the `/var/lib/docker/` mount point. You can specify any of the block devices used to create the Btrfs filesystem.

```
$ sudo mount -t btrfs /dev/xvdf /var/lib/docker
```

Don't forget to make the change permanent across reboots by adding an entry to `/etc/fstab`.

4. If `/var/lib/docker` previously existed and you backed up its contents during step 1, restore them onto `/var/lib/docker`.

## Install Docker EE

You can install Docker EE in different ways, depending on your needs:

- Most users set up Docker's repositories (`/install/linux/docker-ee/suse/#install-using-the-repository`) and install from them, for ease of installation and upgrade tasks. This is the recommended approach.

- Some users download the RPM package and install it manually and manage upgrades completely manually. This is useful in situations such as installing Docker on air-gapped systems with no access to the internet.

## Install using the repository

Before you install Docker EE for the first time on a new host machine, you need to set up the Docker repository. Afterward, you can install and update Docker EE from the repository.

✔ **Note:** If you need to run Docker EE 2.0, please see the following instructions:

- 18.03 (<https://docs.docker.com/v18.03/ee/supported-platforms/>) - Older Docker EE Engine only release
- 17.06 (<https://docs.docker.com/v17.06/engine/installation/>) - Docker Enterprise Edition 2.0 (Docker Engine, UCP, and DTR).

### SET UP THE REPOSITORY

1. Temporarily add the `$DOCKER_EE_BASE_URL` and `$DOCKER_EE_URL` variables into your environment. This only persists until you log out of the session. Replace `<DOCKER-EE-URL>` listed below with the URL you noted down in the prerequisites (`/install/linux/docker-ee/suse/#prerequisites`).

```
$ DOCKER_EE_BASE_URL="<DOCKER-EE-URL>"
$ DOCKER_EE_URL="${DOCKER_EE_BASE_URL}/sles/12.3/<ARCHITECTURE>/stable-<VERSION>"
```

Where:

- `DOCKER-EE-URL` is the URL from your Docker Hub subscription.
- `ARCHITECTURE` is `x86_64` , `s390x` , or `ppc64le` .
- `VERSION` is `18.09`

As an example your command should look like:

```
DOCKER_EE_BASE_URL="https://storebits.docker.com/ee/sles/sub-555-55-555"
```

2. Use the following command to set up the **stable** repository. Use the command as-is. It works because of the variable you set in the previous step.

```
$ sudo zypper addrepo ${DOCKER_EE_URL} docker-ee-stable
```

3. Import the GPG key from the repository. Replace `<DOCKER_EE_URL>` with the URL you noted down in the prerequisites (`/install/linux/docker-ee/suse/#prerequisites`).

```
$ sudo rpm --import "${DOCKER_EE_BASE_URL}/sles/gpg"
```

## INSTALL DOCKER EE

1. Update the `zypper` package index.

```
$ sudo zypper refresh
```

If this is the first time you have refreshed the package index since adding the Docker repositories, you are prompted to accept the GPG key, and the key's fingerprint is shown. Verify that the fingerprint matches

`77FE DA13 1A83 1D29 A418 D3E8 99E5 FF2E 7668 2BC9` and if so, accept the key.

2. Install the latest version of Docker EE and `containerd`, or go to the next step to install a specific version.

```
$ sudo zypper install docker-ee docker-ee-cli containerd.io
```

Start Docker:

```
$ sudo service docker start
```

3. On production systems, you should install a specific version of Docker EE instead of always using the latest. List the available versions. The following example only lists binary packages and is truncated. To also list source packages, omit the `-t package` flag from the command.

```
Loading repository data...
Reading installed packages...
```

The contents of the list depend upon which repositories you have enabled. Choose a specific version to install. The third column is the version string. The fourth column is the repository name, which indicates which repository the package is from and by extension its stability level. To install a specific version, append the version string to the package name and separate them by a hyphen (-):

Docker is installed but not started. The `docker` group is created, but no users are added to the group.

- Edit the file `/etc/docker/daemon.json` (create it if it does not exist) and add the following contents:

Save and close the file.

6. Verify that Docker EE is installed correctly by running the `hello-world` image.

```
$ sudo docker run hello-world
```

This command downloads a test image and runs it in a container. When the container runs, it prints an informational message and exits.

Docker EE is installed and running. You need to use `sudo` to run Docker commands. Continue to Linux postinstall (<https://docs.docker.com/install/linux/linux-postinstall/>) to configure the graph storage driver, allow non-privileged users to run Docker commands, and for other optional configuration steps.

**Important:** Be sure Docker is configured to start after the system firewall. See Firewall configuration (</install/linux/docker-ee/suse/#firewall-configuration>).

## UPGRADE DOCKER EE

To upgrade Docker EE:

1. If upgrading to a new major Docker EE version (such as when going from Docker 18.03.x to Docker 18.09.x), add the new repository (</install/linux/docker-ee/suse/#set-up-the-repository>).
2. Run `sudo zypper refresh`.
3. Follow the installation instructions (</install/linux/docker-ee/suse/#install-docker-ee>), choosing the new version you want to install.

## Install from a package

If you cannot use the official Docker repository to install Docker EE, you can download the `.rpm` file for your release and install it manually. You need to download a new file each time you want to upgrade Docker EE.

1. Go to the Docker EE repository URL associated with your trial or subscription in your browser. Go to [sles/12.3/](https://sles/12.3/) choose the directory corresponding to your architecture and desired Docker EE version. Download the `.rpm` file from the `Packages` directory.
2. Import Docker's official GPG key:

```
$ sudo rpm --import <DOCKER-EE-URL>/sles/gpg
```

3. Install Docker EE, changing the path below to the path where you downloaded the Docker package.

```
$ sudo zypper install /path/to/package.rpm
```

Docker EE is installed but not started. The `docker` group is created, but no users are added to the group.

4. Configure Docker EE to use the Btrfs filesystem. **This is only required if the / filesystem is not using Btrfs.** However, explicitly specifying the `storage-driver` has no harmful side effects.

Edit the file `/etc/docker/daemon.json` (create it if it does not exist) and add the following contents:

```
{  
  "storage-driver": "btrfs"  
}
```

Save and close the file.

5. Start Docker:

```
$ sudo service docker start
```

6. Verify that Docker EE is installed correctly by running the `hello-world` image.

```
$ sudo docker run hello-world
```

This command downloads a test image and runs it in a container. When the container runs, it prints an informational message and exits.

Docker EE is installed and running. You need to use `sudo` to run Docker commands. Continue to Post-installation steps for Linux (<https://docs.docker.com/install/linux/linux-postinstall/>) to allow non-privileged users to run Docker commands and for other optional configuration steps.

**Important:** Be sure Docker is configured to start after the system firewall. See Firewall configuration (</install/linux/docker-ee/suse/#firewall-configuration>).

## UPGRADE DOCKER EE

To upgrade Docker EE, download the newer package file and repeat the installation procedure (</install/linux/docker-ee/suse/#install-from-a-package>), using `zypper update` instead of `zypper install`, and pointing to the new file.



# Uninstall Docker EE

1. Uninstall the Docker EE package using the following command.

```
$ sudo zypper rm docker-ee
```

2. Images, containers, volumes, or customized configuration files on your host are not automatically removed. To delete all images, containers, and volumes:

```
$ sudo rm -rf /var/lib/docker/*
```

If you used a separate BTRFS filesystem to host the contents of `/var/lib/docker/`, you can unmount and format the Btrfs filesystem.

You must delete any edited configuration files manually.

## Next steps

- Continue to Post-installation steps for Linux (<https://docs.docker.com/install/linux/linux-postinstall/>)
- Continue with the User Guide (<https://docs.docker.com/engine/userguide/>).

requirements (<https://docs.docker.com/glossary/?term=requirements>), apt (<https://docs.docker.com/glossary/?term=apt>), installation (<https://docs.docker.com/glossary/?term=installation>), suse (<https://docs.docker.com/glossary/?term=suse>), opensuse (<https://docs.docker.com/glossary/?term=opensuse>), sles (<https://docs.docker.com/glossary/?term=sles>), rpm (<https://docs.docker.com/glossary/?term=rpm>), install (<https://docs.docker.com/glossary/?term=install>), uninstall (<https://docs.docker.com/glossary/?term=uninstall>), upgrade (<https://docs.docker.com/glossary/?term=upgrade>), update (<https://docs.docker.com/glossary/?term=update>)