



OPENSUSE TUMBLEWEED · ROLLING · ZYPPER · YAST · KDE

openSUSE Handbook

Installation guide

Install openSUSE Tumbleweed step by step. Making the install USB with Rufus, starting from the USB, every YaST installer screen, Btrfs snapshots, the first start, updating with zypper, installing alongside Windows and common problems.

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Yellow italic text (like *<package>*) marks the parts you fill in. In the terminal, paste is Ctrl+Shift+V and copy is Ctrl+Shift+C. Commands that start with `sudo` change the system; read what they do before running them.



sudogrimoire.com/opensuse/

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Before you start

Set aside half an hour for these. Most installation problems come from skipping them.

TIP System requirements. 64-bit processor, at least 4 GB RAM, at least 40 GB of disk (Btrfs snapshots need room).

TIP Back up. Installing can erase the disk. Copy your documents, photos and browser bookmarks to an external drive or the cloud, and open one or two files from the copy to be sure it worked.

TIP A USB drive of 8 GB or more. Writing erases everything on it, so use an empty one.

TIP Your Wi-Fi password. Write it down; the installer asks for it.

TIP Keeping Windows on the same computer? Save your BitLocker recovery key first. On your phone, open aka.ms/myrecoverykey, sign in with the Microsoft account you use on this computer, and take a photo of the key. Windows may ask for it once after you install Linux.

TIP Download the ISO: get.opensuse.org/tumbleweed. The **Offline Image** (DVD) has everything; the **Network Image** is small and downloads the rest.

Keep Windows or not?

Decide this before you start. It changes one choice in the installer.

Not sure yet

The Offline Image installs only. To try openSUSE first, download a Live image from get.opensuse.org/tumbleweed.

Only openSUSE

Back up your files, then let the installer use the whole disk. This is the simplest path. It erases Windows and everything else on the disk.

openSUSE and Windows

Follow “Installing alongside Windows” below. Set aside an extra half hour: you first make room on the disk in Windows, then share it in the installer.

Making the install USB

You can't simply copy the downloaded file (the ISO) onto the USB drive. A small program writes it so the computer can start from it.

1 Download Rufus

Get Rufus from rufus.ie; the "Portable" version needs no installing. Download the openSUSE Tumbleweed Offline Image from get.opensuse.org/tumbleweed. Plug in the USB drive.

2 Open Rufus

In **File Explorer** > **Downloads**, double-click **rufus**. When Windows asks for permission, click **Yes**.

3 Pick the USB drive and the ISO

Under **Device**, make sure your USB drive is selected. Click **SELECT**, pick the openSUSE ISO and click **Open**.

4 Start

Leave the other settings as they are, and click **START**.

5 Choose DD Image mode

Choose **"Write in DD Image mode"**, and click **OK**.

6 Confirm and wait

Rufus warns that it will erase everything on the USB drive. Check the name and size, then click **OK**. When the bar turns green and says **READY**, click **CLOSE**.

TIP On macOS or Linux, use **balenaEtcher** (etcher.balena.io).

WARNING Writing erases the selected drive completely. Before you press the final button, check that the drive name and size belong to your USB drive and not to your backup disk.

Starting the computer from the USB

A computer normally starts from its own disk. To start it from the USB drive, you open a one-time boot menu.

1 Plug in the USB and restart

Leave the USB drive plugged in and restart the computer.

2 Press the boot menu key

As soon as the screen turns on, tap the key for your brand (see the list below) again and again until a menu appears.

3 Choose the USB drive

Select your USB drive with the arrow keys and press Enter. If it appears twice, choose the one that starts with "UEFI:".

Boot menu key

Dell F12 · HP F9 or Esc · Lenovo F12 (Novo button on some models) · ASUS F8 or Esc · Acer F12 · MSI F11 · Gigabyte F12

TIP No luck with the key? Start from Windows instead: Settings > System > Recovery > Advanced startup > **Restart now**, then **Use a device** and pick your USB drive.

TIP Secure Boot. openSUSE starts with Secure Boot on, so you don't need to change anything. Drivers added later, such as NVIDIA's, need one extra step, covered in the Advanced tab.

TIP If the USB drive isn't in the menu, or the installer later says it can't find a disk, see **Installation problems** near the end.

Installing alongside Windows (optional)

Only for the “openSUSE and Windows” path. If openSUSE will be the only system, skip this section.

1 Turn off Fast Startup

Windows' Fast Startup leaves the disk half shut down, and that can damage files. Open **Control Panel > Power Options > Choose what the power buttons do**. Click **Change settings that are currently unavailable**, clear **Turn on fast startup** and click **Save changes**.

2 Open Disk Management

Right-click the **Start** button and click **Disk Management**.

3 Shrink the C: drive

Right-click the **C:** partition and click **Shrink Volume**. In **Enter the amount of space to shrink in MB**, type at least **51200** (50 GB); 102400 (100 GB) gives you more room. Click **Shrink**.

4 Leave the new space empty

A black bar labeled **Unallocated** appears next to C:. Leave it as it is: do not create a partition and do not format it. The installer uses this space.

5 Pick the free space in the installer

In the installer, choose “Guided Setup” and let it shrink or use the free space next to Windows. Never choose the option that erases the whole disk.

6 Choose the system at every start

After installing, a menu appears at every start. Pick openSUSE or Windows with the arrow keys and press Enter. If the computer goes straight into Windows, see “Installation problems”.

TIP If Windows asks for the BitLocker recovery key once after this, type the key you saved in “Before you start”.

Installation steps

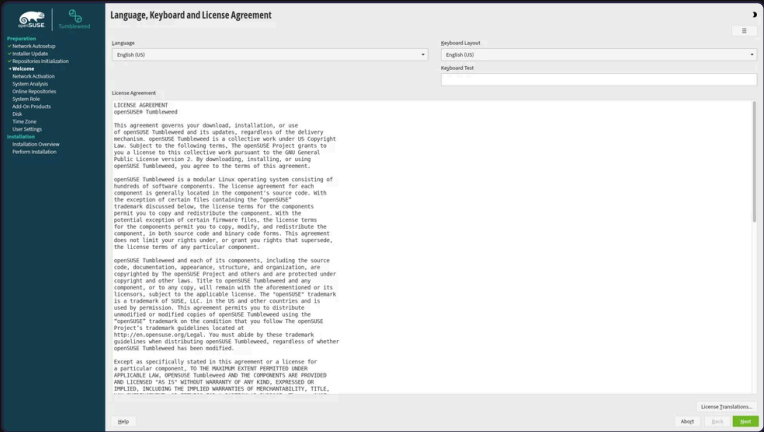
Start the computer from the USB drive. These steps are for the openSUSE Tumbleweed Offline Image with the YaST installer.

1 Start menu

In the first menu, choose **Installation** and press Enter. The installer loads; this takes a minute or two.

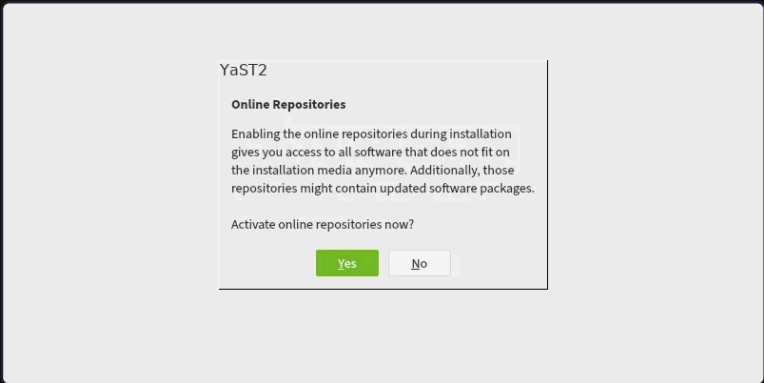
2 Language and license

Keep English and your keyboard layout. The license is shown below. Click **Next**.



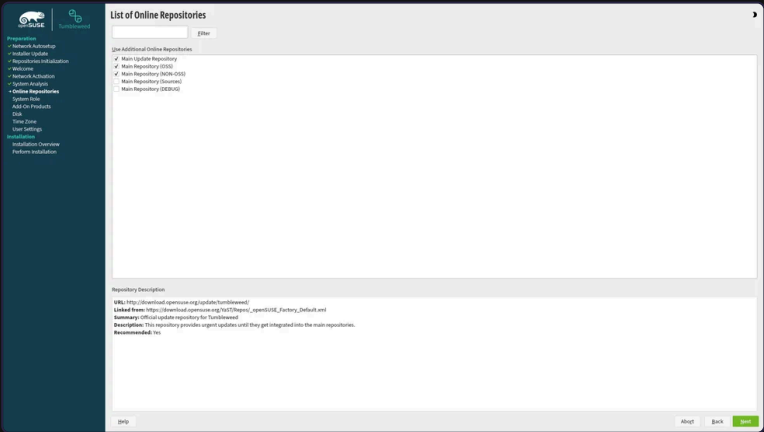
3 Online repositories

Click **Yes** to use the online repositories, so you get the newest packages.



4 Repository list

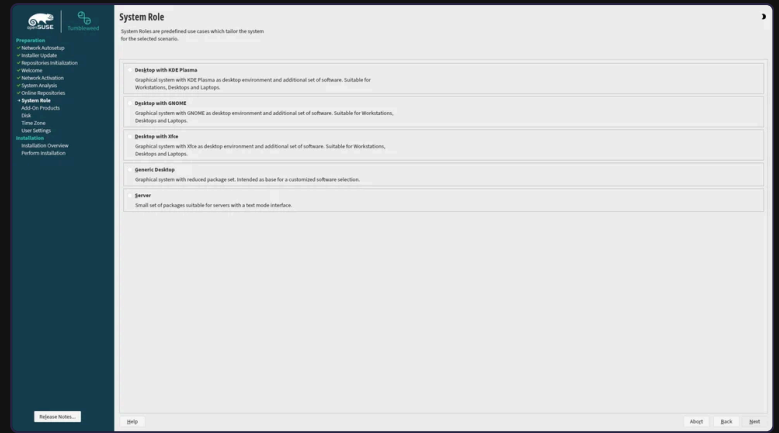
Keep the suggested repositories, and click **Next**.



5

System role

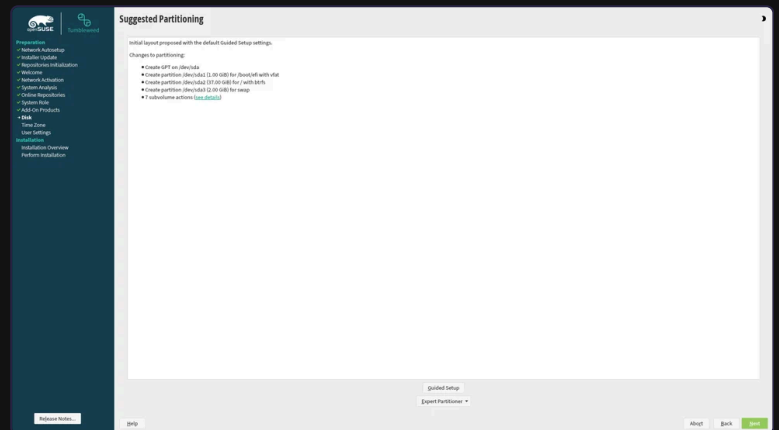
Choose a desktop: **KDE Plasma** (the default), **GNOME** or **Xfce**. Click **Next**.



6

Disk

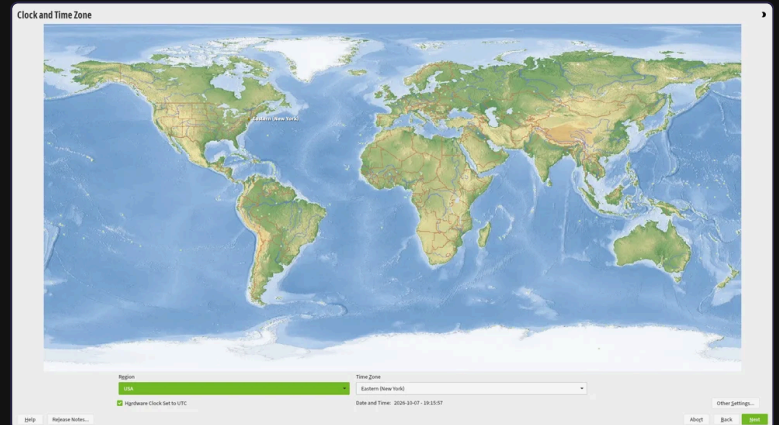
openSUSE suggests Btrfs with automatic snapshots. It erases the whole disk. Click **Next; Guided Setup** lets you change it.



7

Time zone

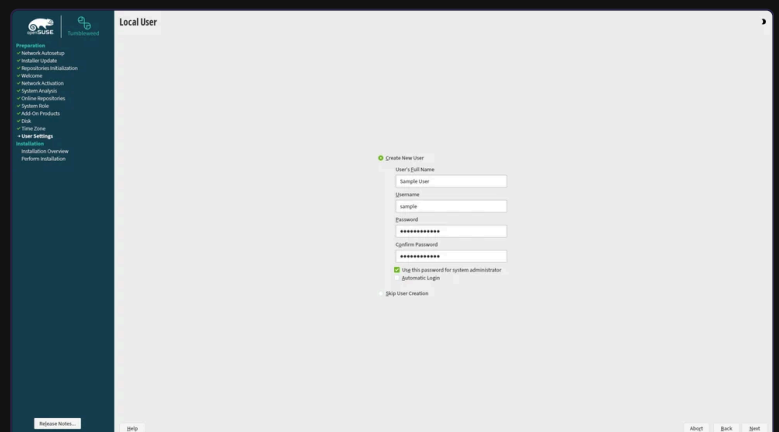
The time zone is set from your location. Check it, and click **Next**.



8

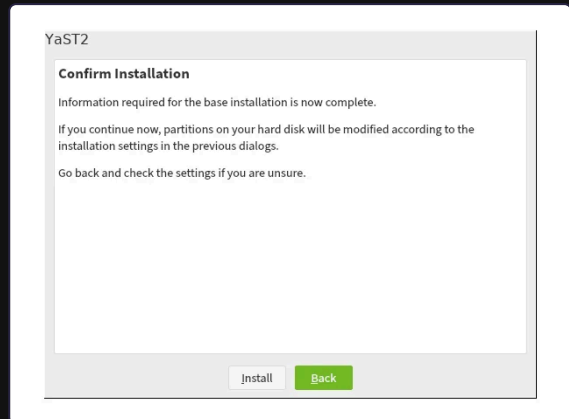
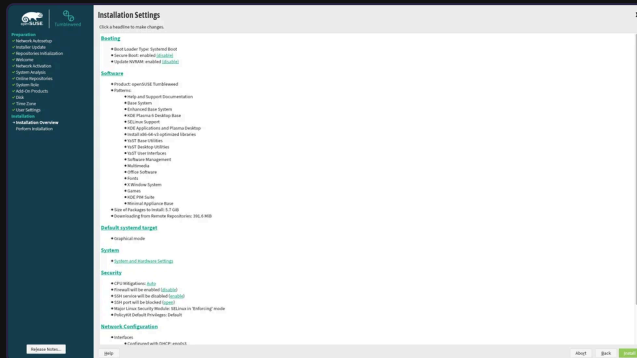
Your account

Type your full name, a username and a password twice. Untick **Automatic Login** so the computer asks for your password. Click **Next**.



Summary

The firewall is on and SSH is off. Click **Install**, then **Install** again to confirm.



Wait while it installs

openSUSE downloads and installs the packages, then restarts by itself. Remove the USB drive while it restarts.

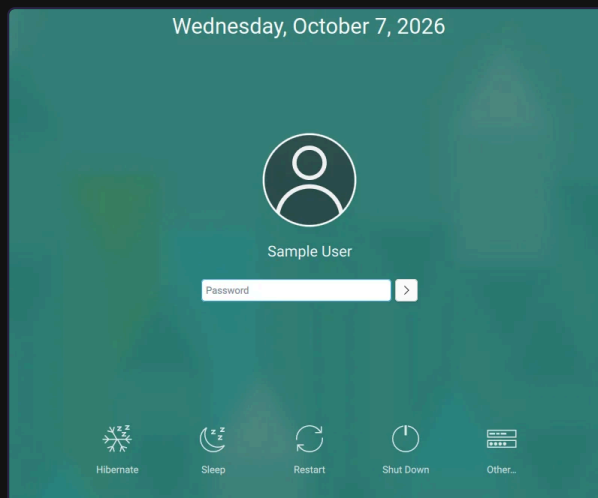


First start

After the restart, openSUSE starts from the disk with the KDE Plasma login screen.

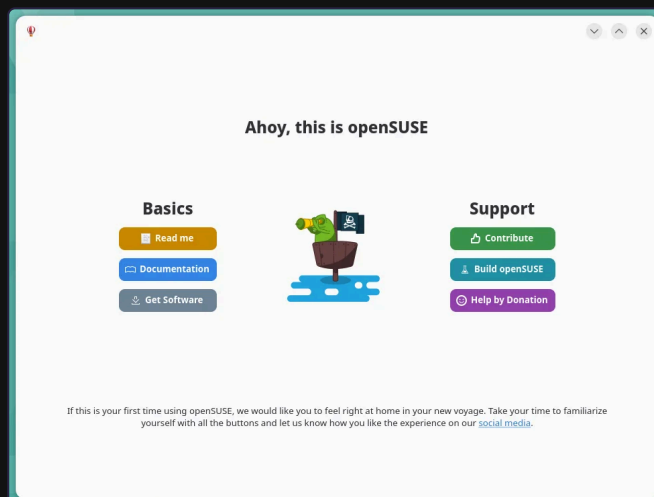
1 Log in

Click the screen, type your password and press Enter.



2 Welcome

A welcome window offers documentation and help. Close it when you're ready.



Right after installing

Your new system is ready. Do these two things first, then carry on with the Beginner book.

1

Open Konsole

Press Ctrl + Alt + T .

2

Distribution upgrade

Type `sudo zypper dup`, press `Enter` and type your password. `zypper` lists the updates; press `Enter` to continue.

```
sample@localhost:~$ sudo zypper dup
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

For security reasons, the password you type will not be visible.

[sudo] password for root:
Loading repository data...
Reading installed packages...
Warning: You are about to do a distribution upgrade with all enabled repositories. Make sure these repositories are compatible before you continue. See 'man zypper' for more information.
Computing distribution upgrade...

The following package is going to be upgraded:
  libopenm264-8
  package to upgrade.

Package download size: 468.8 KiB
Package install size change:
  1.3 MiB | - 41.9 KiB required by packages that will be installed
  1.3 MiB | - 41.9 KiB released by packages that will be removed
Recomm.: classic_rpmtrans
Continue? [y/n/?..?] shows all options) (y):
```

3

Restart

When it finishes, restart the computer if the kernel or desktop was updated.

```
sample@localhost:~$ sudo zypper dup
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  1.3 MiB | - 41.9 KiB released by packages that will be removed
Recomm.: classic_rpmtrans
Continue? [y/n/?..?] shows all options) (y):
Preloading: libopenm264-8-2.6.8-2.suse1699.10.x86_64.rpm [done]
Preload finished, Success (38.7 KiB/s)
Retrieving: libopenm264-8-2.6.8-2.suse1699.10.x86_64 (Open M.264 Codec (openSUSE Tumbleweed))

Checking for file conflicts: .....
[*] Installing: libopenm264-8-2.6.8-2.suse1699.10.x86_64
Running post-transaction scripts .....
There are running programs which still use files and libraries deleted or updated by recent upgrades. They should be restarted to benefit from the latest updates. Run 'zypper ps -s' to
sample@localhost:~$
```

TIP

Next, open the **Beginner** tab. Its “After installing” section walks you through apps, drivers and settings one step at a time.

Installation problems

TIP The USB drive isn't in the boot menu. Plug it into another port (on a desktop, one on the back) and try again. If it still doesn't show, write the USB drive again.

TIP Black screen or freeze while starting from the USB (common with NVIDIA cards). In the first menu choose **More ... > Installation (safe settings)**, or press **e** and add `nomodeset`. After installing, set up the graphics driver as shown in the Beginner book.

TIP The installer can't find a disk. Many new laptops keep the disk in a mode called Intel RST or VMD. You can change it in the firmware settings, but if Windows is on the same disk, Windows may stop starting. Read "Intel RST / VMD" in the last section before changing anything.

TIP Secure Boot or signature error. The download may be damaged. Download the ISO again and write the USB drive again. On very old computers, turning Secure Boot off in the firmware settings also helps.

TIP No Wi-Fi in the installer. Use a network cable, or connect your phone with a USB cable and turn on USB tethering. You can install the missing Wi-Fi driver afterwards.

TIP The computer goes straight into Windows. Open the boot menu (see "Starting the computer from the USB") and pick openSUSE. To make it permanent, move openSUSE (or "GRUB", "Linux Boot Manager") to the top of the boot order in the firmware settings (F2 or Delete at startup).

TIP Windows asks for a BitLocker recovery key. Type the key you saved. It happens once.

For experienced users (optional)

A normal installation needs nothing from this section. It collects command-line alternatives and fixes for special cases.

```
$ sha256sum <file>.iso
```

Checks the downloaded ISO on Linux. The result must match the CHECKSUM/SHA256 value on the download page.

```
PS> Get-FileHash <file>.iso -Algorithm SHA256
```

The same check in Windows PowerShell.

```
$ shasum -a 256 <file>.iso
```

The same check on macOS.

```
$ lsblk
```

On Linux, find the USB drive's name (e.g. /dev/sdb). Use the disk itself, not a partition (sdb1).

```
$ sudo dd if=<file>.iso of=/dev/<sdX> bs=4M  
status=progress oflag=sync
```

Writes the ISO straight to the USB drive on Linux.

WARNING `dd` erases the selected disk without asking. Check the name twice.

TIP Ventoy: prepare the USB drive once, then copy several ISO files onto it and pick one at startup. Handy for trying several systems.

TIP Rufus write mode. If a USB drive written in ISO mode doesn't start, write it again and choose "DD image mode" when Rufus asks.

```
PS> manage-bde -protectors -get C:
```

Shows the BitLocker recovery key (Terminal as administrator).

```
PS> Suspend-BitLocker -MountPoint C: -  
RebootCount 3
```

Pauses BitLocker for the next three restarts so boot changes don't trigger the recovery screen.

```
PS> powercfg /h off
```

Turns off Fast Startup and hibernation in one go.

```
PS> reg add  
HKLM\SYSTEM\CurrentControlSet\Control\TimeZoneIn  
formation /v RealTimeIsUniversal /t REG_DWORD /d  
1 /f
```

Fixes the wrong clock in Windows after using Linux (Windows then keeps the hardware clock in UTC like Linux).

TIP nomodeset by hand. In the USB drive's boot menu, highlight the entry, press `e`, add `nomodeset` to the end of the line that starts with `linux`, and start with Ctrl+X (or F10). It applies to that start only.

TIP Intel RST / VMD. In the firmware, set SATA mode to AHCI or turn VMD off. If Windows is on the same disk, first make Windows start once in Safe Mode (`bcdedit /set {current} safeboot minimal`, restart, change the firmware setting, then `bcdedit /deletevalue {current} safeboot` in Safe Mode) or Windows won't start.

```
$ sudo zypper dup
```

Installs all updates from the terminal.

```
$ lsblk -f && df -h /
```

Shows the partitions and free space after installing.

```
$ ls /sys/firmware/efi
```

If the folder exists, you installed the system in UEFI mode.

Commands are written for openSUSE Tumbleweed with KDE Plasma (zypper, YaST, Btrfs). Most also work on Leap. Menu names follow the English interface. Commands that start with `sudo` change the system; read what they do before running them.