

# 1 Welcome to the Install Event!

Welcome to the LinuxDays Install Event. This document is designed to help you understand where you can find everything you need. Please also pay attention to any announcements we make.

## Material

You will need a variety of things for the installation. You can find power outlets and LAN cables on the table, ready to be used. For all the other material we have set up a supply desk. There, you can not only get the installation guides and the USB installers but also USB hubs, LAN adapters and keyboards if you need them. Whenever you need to get material, please go to that desk and ask for what you need. When you go for the first time you will have to present your **Legi or ID card** and leave it there as a deposit. You will get your Legi back as soon as you have returned all the material you got from us. This is so we can prevent the material from getting lost.

## Staff

Our staff is easily recognizable by their blue T-Shirts with our logo on the front and a large penguin on the back. We distinguish three types of helpers:

- General Helpers: Those are either TheAlternative members or volunteers. They are here to help you with the installation in case any problems arise.
- Patrol: Those helpers can be recognized by their orange armbands. Their job is to schedule the General Helpers. It often happens that certain helpers have special skills which are needed in some particular case or other, so the Patrol will inform those helpers of a problem that needs their special attention. Please do not ask the Patrol for help with your installation. If, however, you have been waiting for a helper for a while, please refer to the Patrol and they will make sure someone will attend to you as soon as possible.
- Auxiliary Staff: Those helpers are marked with green armbands. Their job is to do all the non-technical work, such as preparing food or handing out supplies. Please do not ask them installation-related questions. They are, however, very happy to answer your questions about the events or TheAlternative.

## Demolaptops

We have some laptops prepared with different Distributions and Desktop Environments on them. If you have any troubles deciding which Distro or Desktop Environment you want, please feel free to go to the demo table and have a look at these laptops. There should be a staff member present near the demolaptops to answer any questions you might have.

## Food

We have free sandwiches and drinks ready for you. During the installation, there will oftentimes be moments when you have to wait for your computer to do things. You can use these moments to take a break.

Have fun, and welcome to the wonderful world of Linux!

## Questionnaire to find out your needs

This questionnaire acts as a summary of your equipment and preferences. Fill it in and we will hand you an install guide with instructions that specifically fit your setup. Also, this page will act as a situation overview for you and our staff, so make sure your answers are correct. If you are unsure, don't hesitate to ask a helper for advice.

Your name: \_\_\_\_\_

**1. What Operating System are you currently using on your computer?**

- Max OS X    Windows 7 or earlier    Windows 8/Windows 10  
 Something else: \_\_\_\_\_

**2. Which Linux distro do you want to install? We have provided you a summary of some popular ones on the next few pages.**

- OpenSUSE    Ubuntu 18.04    Fedora  
 Something else: \_\_\_\_\_

**3. What Desktop Environment would you like to install? Try out our demo laptops and have a look at the next few pages if you're not sure.**

- GNOME    KDE    Unity    XFCE  
 Something else: \_\_\_\_\_

**4. Do you want to dualboot, i.e. keep your current system and install Linux alongside, or completely erase your old operating system, including the data on it?**

*It is unfortunately not possible to erase the current operating system and keep your files. If you want to do this, you need a backup of your files on an external hard drive.*

- Dualboot    Erase current operating system

**5. Do you have EFI Boot or Legacy Boot?**

*Windows: Hit Windows + R and type diskmgmt.msc. Hit enter. In the new window, look for a partition that's labelled as EFI System Partition. If there is one, you have EFI, otherwise you have Legacy.*

*Mac OS X: You have EFI.*

- EFI Boot    Legacy Boot

**6. Do you have an MBR partitioned disk or a GPT partitioned disk?**

*If you have Legacy boot (see above), you also have MBR partitioning.*

*Mac OS X: You have GPT.*

*Windows: Hit Windows + R and type diskmgmt.msc. Hit enter. In the new window, look for your main drive (the one that contains the C: partition) and right click it (the drive, not the partition). Select Properties. Click on the Volumes tab and find the entry Partition style. It should say one of Master Boot Record (MBR) or GUID Partition Table (GPT).*

- GPT    MBR

**Ready to go!**

Please bring the filled in questionnaire **as well as your Legi or identity card** to the Supply Desk and we will hand you your personalized install guide along with all the material necessary for the installation.

You can leave these lines blank. They are for helpers to note down any special features of your system for reference.

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## What distribution should I pick?

Linux is an operating system of choices, which can be overwhelming for beginners.

**First, you need to pick your Linux distribution.** This page gives you an overview of the various distributions and their advantages.

In order to help you with the choice of distribution, we have two resources ready for you:

- Below you find a quick overview of some distributions we picked out for you.
- To get a hands-on experience, you can try some distributions on our demo laptops in the auxiliary room.

Note that at this point, we have prepared guides for **Ubuntu and OpenSUSE**. If you want anything other than that, we will gladly help you find appropriate guides online.

If you want more information or advice, you can ask a helper. Note, though, that every helper might have a different opinion on the distributions.

**Ubuntu** is a beginner-friendly, popular distro, which requires nearly no configuration. It comes with the GNOME 3 desktop, which OS X users may find familiar. There are also official Ubuntu spinoffs with other desktop environments (DEs). Due to Ubuntu's popularity, it's easy to find help on the internet when you have a problem, which makes it a good choice for newcomers. Unlike most other distributions, which are maintained by independent communities, Ubuntu is developed by Canonical, a software company. Be warned that many have concerns with Canonicals controversial stance on the ideals of open source software, the rest of the FOSS community, and privacy practices.

**Versions:** Ubuntu has two different release versions, the current version, and the LTS (Long term support) version. LTS is usually supported for four years, and is supposed to be as stable as possible. Because of this, it often has older versions of software. Choose LTS if you are after extreme stability or if you have specific requirements. If you want a more modern user experience, the current release is the better option.

**Suggestions:** Beginners

**DEs:** Xfce (with Xubuntu), KDE 5 (with Kubuntu), Gnome

**OpenSUSE** is a unique distro that targets both experienced and new users. It offers a great compromise between configurability and ease of use, making all its features accessible without “dumbing down” the interface. It is known for its YaST system configuration tool, which you can use to do tweaks you would otherwise need the terminal for. This distribution is maintained by the openSUSE community, but is based on the commercial Suse Linux Enterprise Edition. This makes it a stable, well rounded distro. We distinguish between OpenSuse Tumbleweed (rolling release, bleeding-edge software) and Leap (versioned as Ubuntu, more stable than Tumbleweed).

**Suggestions:** For users wanting a sophisticated and user-friendly system.

**DEs:** KDE, Xfce, Gnome, LXDE

**Note:** OpenSUSE Leap is only for modern 64-bit computers. Additionally, the OpenSuse installer will not work with newer Lenovo devices (released in 2017 or later), such as the T470 Thinkpad and the Yoga 370. If you have one of these devices, you will need to install a different Distro.

**CentOS** is the free brother of Red Hat Enterprise Linux (RHEL). RHEL is built for professional purposes and comes with a support contract that companies pay for. If you'd like to take advantage of the technologies of Red Hat Enterprise, but as an individual, without paying for it, then CentOS is the choice for you. It is basically RHEL without the commercial aspect. This makes it a very stable and mature distribution, backed by Red Hat.

**Suggestions:** experienced users and developers

**DEs:** Gnome 3 (default); KDE Plasma

**Fedora** is community maintained, yet corporately backed by Red Hat; similarly to openSUSE. The difference to CentOS is that Fedora is the “Playground” for Red Hat. Fedora is normally the first distro to introduce new features, which are eventually adopted by other distros. Many Linux developers (including Linus Torvalds himself) use Fedora. It normally comes with the GNOME 3 desktop, but also offers "spins" with different DEs. The default software repositories (repos) only include free software, but you can enable the RPMFusion repos which contain the non-free software. It is the distribution installed on most ETH desktop computers.

**Suggestions:** experienced users and developers

**DEs:** Gnome 3 (default); KDE Plasma, Xfce, LXDE, MATE-Compiz, Cinnamon





**Linux Mint** is a Ubuntu-based distro, which focuses on preserving the traditional desktop (like Windows 7). Its community is a lot smaller than for example Ubuntu's, which makes it hard to find help when problems occur. Also, it is maintained by a rather small group of developers, which means it usually takes a while for them to react on user feedback.

**Suggestions:** Beginners

**DEs:** MATE, Cinnamon

**Debian** is a universal distro, which has been going strong for over 20 years, and is the most forked distro. Debian is rather lightweight, requiring you to pick your own components, but configures them automatically to a degree. It strictly follows its principles of free software, although it includes non-free software on non-free repositories. It has 3 branches: stable, unstable, and testing. Debian has a reputation of being very conservative about implementing new features in their stable release.

**Suggestions:** more experienced users who already know what they want

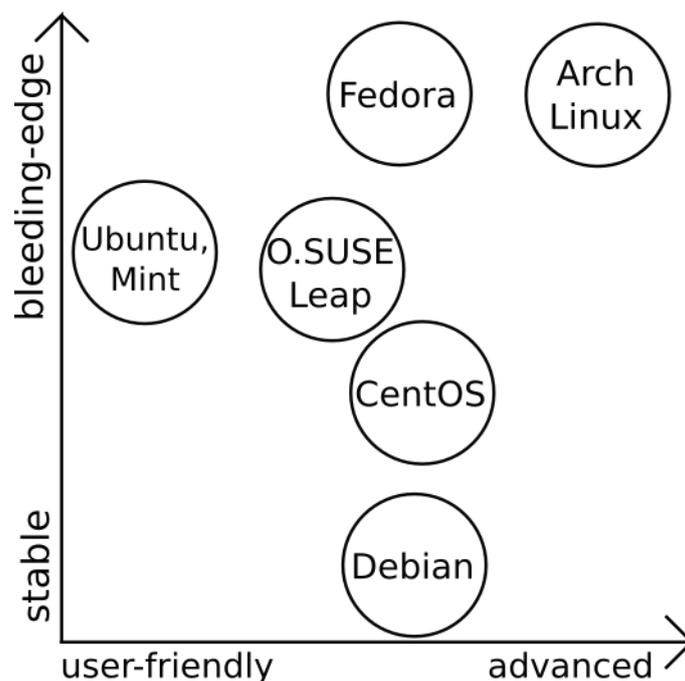
**DEs:** Gnome, KDE, Xfce, LXDE, MATE

**Arch Linux** is a distribution that focuses on simplicity and bleeding-edge software. It is rolling release, meaning that software is shipped as soon as it is released and Arch does not have version numbers (such as "Ubuntu 16.04" or "Fedora 27"). Unlike the other distros presented above, Arch has no default Desktop Environment, browser, mail client etc: it leaves the choice up to you. This makes Arch Linux a distribution for more advanced Linux users. It is *possible* for particularly motivated enthusiasts to make Arch their first Linux experience, but the learning curve is extremely steep. We do not recommend installing Arch Linux in the Install Events. If you choose Arch, better ask someone if they are willing to set down with you personally for a few hours and help you getting started.

In the following graph, we try to give an overview of the distributions presented above. Keep in mind that this representation is not objective but reflects the opinion of the authors. There are no exact measures concerning novelty and user-friendliness.

We consider distros on the left side easier to dive into for people who never used Linux. In principle, it is possible to start with any distro, but the learning curve is steeper for distros on the right in the diagram.

The higher a distro appears in the diagram, the more "bleeding-edge" it is. When a new version of a software comes out, it will be included in the bleeding-edge distros first. This comes at the price of having lower reliability since many bugs are yet undetected. On the other hand, distros on the lower part are more conservative, but more stable.



## Desktop Environment Flowchart

Apart from the distro, you also need to choose a Desktop Environment (DE) for your new Linux system.

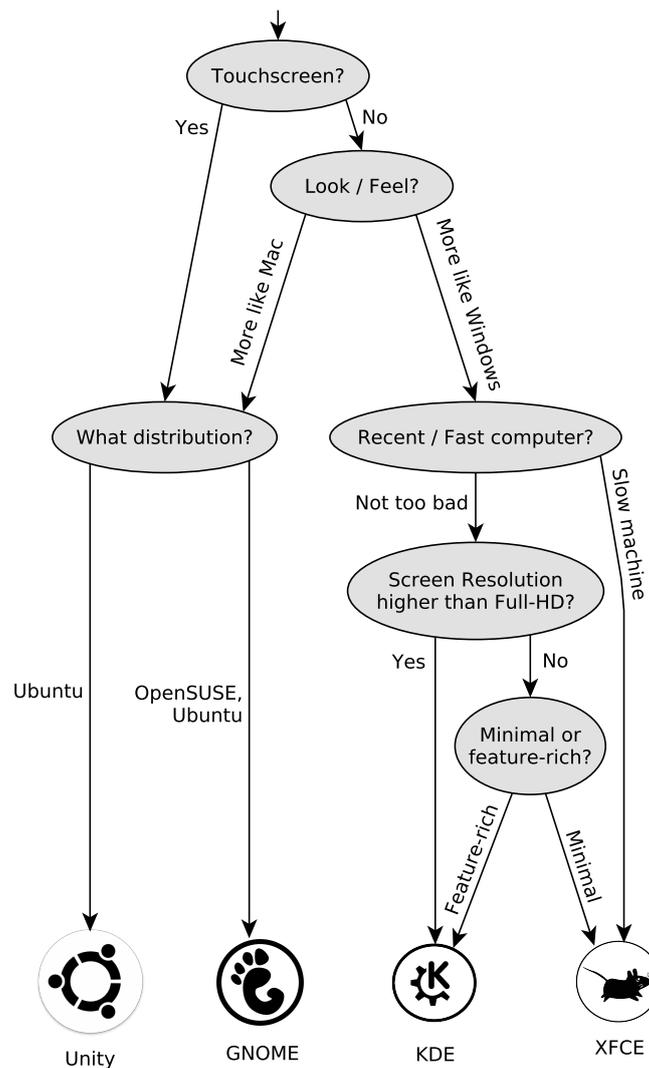
Typically, a Linux distro ships with a given Desktop Environment. But most distros come in multiple versions, which offer different Desktop Environments but otherwise work the same. This lets you choose how your new Linux system will look. For Ubuntu, there is a special distro for each DE (e.g. Ubuntu with KDE is called Kubuntu, the XFCE flavour is called Xubuntu etc.). OpenSUSE however lets you pick your DE when installing. This flowchart is to help you decide what Desktop Environment you could pick. It is not mandatory, though. You can use any DE on pretty much any machine.

**Again, to get a feel for each DE, test them in real life on our demo machines.** They are located in the auxiliary room. It's important that you feel good and comfortable in your daily use with your DE.

Distinction “slow” vs. “fast” computer:

- indicators for a slow machine:
  - Processor (look for a sticker saying one of): AMD; Intel: Pentium, Core 2 Duo, Core M, Centrino, Atom
  - RAM (“Arbeitsspeicher”): 1GB or less (2GB could still be considered slow)
- indicators for a fast machine: Intel i5/i7 or recent i3 processor, SSD, 4GB RAM or more

Of course you gain speed and resources for your programs when installing a minimal DE instead of a feature-rich DE even on a fast machine.



## 2 Preparation

### Safety

Some of the following points may seem a little scary. Don't be afraid: in almost all cases, nothing bad happens. For your security though, we will be assuming the worst case scenario. Please check the following points:

1. Make sure you have signed the document at the welcome desk, stating with your signature that you take the responsibility for your hardware and data.
2. Please rethink whether you have backed up any important data. You will be re-partitioning your hard drive. If anything goes wrong with that (which is unlikely but possible), any data not on your backup is lost!
3. It's advisable to connect your laptop to the power outlet.

### Supply

We have some supplies that you can borrow in case you need any. At the Supply Desk you will find USB Install Sticks for Ubuntu and OpenSUSE, USB to LAN adapters, USB hubs and USB keyboards.

Make sure you have gotten a USB key with your chosen distribution from the Supply Desk . The Supply Desk will create install media for other distributions for you as well.

### Make space

We recommend to have at least 20 GB of free space on your disk. If you know you need programs for your studies (e.g. Matlab), please have at least 40 GB of free space on your disk. In case you are missing space, you can empty the trash and cleanup your disk:

1. In Windows Explorer, go to *My computer* and right click *your main drive* (typically C:\), then pick *Properties* and select *Disk Cleanup* in the bottom right.
2. In the opening window, select *Clean up system files*, select as many boxes as you can and press *ok*. This takes a while.

### Shrink your Windows partition

If you already have unallocated disk space on your computer, you can skip this step. Normally, however, you will now need to shrink your Windows partition so Linux can use the new space.

- Navigate to your system panel. Under the section *Administrative Tools*, click *Create and format hard disk partitions*. If you can't find it, just press *Windows + R* and type *diskmgmt.msc*, then press *Enter*.
- A new window opens up. Take a look at the bottom half of the window, where you should see a graphical representation of which partitions take up how much space. Right click the partition that you want to shrink and click *Shrink Volume...* (Usually, you want to shrink your Windows partition, which is the largest).
- Shrink the volume as much as necessary. As mentioned before, is recommended to at least shrink it by 20 GB. If you need some programs for studies (e.g. Matlab), at least 40 GB is advisable.

If you have done everything correctly, you should now see some disk space that says *unallocated* (*Nicht zugeordnet* in German).

### Disable Bitlocker

Bitlocker is a disk encryption tool from Microsoft that comes preinstalled with some computers. It is unfortunately not compatible with Linux bootloaders. It must be disabled:

1. Press *Win+e*
2. Right click on the Windows drive (C:/)
3. Select "Disable Bitlocker"

### Disable Fast Boot

**Important:** Windows 8 and 10 has a feature called Fast Boot that replaces the shutdown by a sort of extended sleep mode. This speeds up Windows' boot process but leaves the file system in an inconsistent state, preventing Linux from tampering with it. Fast boot must be disabled in order to setup your dual boot system:

1. In your Windows Control Panel, go to the Power Options and pick *Choose what the power buttons do*.
2. If you can't find Power Options in your control panel, you can search for "power" (german: "Energie") from your start menu.
3. If you see *Change settings that are currently unavailable*, click it.



4. Now, on the bottom, disable the checkbox saying *Turn on fast startup (recommended)* and save.

### BIOS configuration

1. In the Windows shutdown menu, select Restart **while** holding *Shift* on your keyboard. A blue screen should appear.
2. Under Troubleshoot, Advanced Options, select *UEFI Firmware Settings*. You should now arrive in the BIOS setup.

**Note:** If this doesn't work, please ask a helper.

The navigation in your BIOS setup highly depends on your computer. Usually, a key description can be found in the bottom. Try to find the boot options (sometimes called *startup*). Now, check again on your cover sheet whether you have Legacy or UEFI BIOS:

- Legacy: Set your UEFI/BIOS boot mode to Legacy.
- UEFI: Set your UEFI/BIOS boot mode to UEFI.

**Note:** If you see an option called CSM (typically on Lenovo), make sure it's enabled for Legacy and disabled for UEFI.

**Note:** If you can't find this setting at all, it simply doesn't exist on your laptop. That is perfectly fine. You can continue with the guide.

Finally, some distros won't boot with SecureBoot enabled. Look for a page called Security and disable the option SecureBoot.

## 2 Boot

We will now boot from your USB Install Medium.

1. Plug the USB Install Medium into your laptop.
2. In the Windows shutdown menu, select Restart **while** holding *Shift* on your keyboard. A blue screen should appear.
3. Pick *Use a device* and select your USB key.

**Note:** On Lenovo the USB key is usually called *USB HDD*.

Now control is passed to the Linux installer. Refer to the sheet concerning the installation of your distribution for instructions how to go on.

## 3 Installer overview

### Starting the installer

After successfully booting from a Fedora installation medium you will be presented with a menu offering the following options: *Start Fedora Workstation Live 25* and *Test this medium & Start Fedora Workstation Live 25*. Select the first option with the arrow keys and press *Enter*.

Now the Fedora Live Environment is loaded. This might take a few moments. During the process a lot of text is scrolling by, if everything goes well you should see a lot of lines starting with a green *OK*. After the desktop is loaded you are greeted with a window that lets you choose between *Try Fedora* and *Install to Hard Drive*. Selecting the latter one will cause the Anaconda installer (the Fedora installer we're using) to start.

The first screen lets you choose the language and the keyboard layout that the installer will use during the installation. Select *Deutsch/English* from the list and you should notice that the interface immediately switches. Next select your preferred keyboard layout. Beware that *Deutsch (Deutschland)* and *Deutsch (Schweiz)* have different layouts regarding special characters. If you wish to use a completely different keyboard layout you can change this on the next screen. Click *Fortfahren/Continue* to continue to the Anaconda main menu.

Now you are in the Anaconda main menu. From here you can access all available settings and change them until you press the *Installieren/Install* button in the lower right corner. Please make sure you configure all the items below before starting you installation.

### Tastatur/Keyboard

This setting defaults to the keyboard layout you initially choose for the installer. However, if you use a different keyboard layout than what is traditionally associated with the your chosen interface language, you can change this here. If you have finished, use the *Fertig/Done* in the upper left corner to save your changes and return to the main menu.

### Netzwerk und Rechnername/Networking and Hostname

*Info:* We will do the installation without networking to speed up the process. No worries, we will update your system later on.

### Zeit und Datum/Time and Date

The installer should choose the correct time zone for your current location. Should this not be the case or should you wish to change your time zone for some reason you can change this here. Use the combo boxes to the upper left to select you region and a major city near you. Use the *Fertig/Done* button in the upper left corner when you are done with your changes.

### Partitioning

Now we partition your system and assign Linux some sections of the hard drive. Click on *Partitionierung/Partitioning* and refer to *4. Partitioning – Fedora* for further instructions

### Starting the installation

**⚠ WARNING:** Clicking the *Installation starten/Start installation* button will start the installation and your settings will be applied

After you configured all the items mentioned above you can start the installation by clicking on the *Installation starten/Start installation* button in the lower right corner. If there is anything wrong with your settings, a yellow bar at the bottom of the screen will inform you about potential configuration errors. If everything is fine the installation will now start.

### User Information

During the installation you can add a user for yourself. Give yourself a full name, user name and password. Also tick the box "Dieser Benutzer ist ein Administrator"/"This user is an administrator". You also have the option set a password for the user *ROOT*. We recommend to leave this field blank, this will prevent direct login as *ROOT*

The installation process will take a while now. Relax, take a break and get some food.

Once it has completed, the computer will reboot automatically. You may now remove the installation media (i.e. the stick we gave you). When the boot manager (i.e. GRUB) shows up, press the space bar to pause the countdown. You may now proceed to *6. Testing* in this guide.





## 4 Partitioning

**IMPORTANT:** If you feel lost, feel free to ask for help at any point in time during this process. We will gladly help you.

Partitioning your hard disk is probably the scariest step of the entire installation process. This is where you can destroy your data. But don't worry—the installer will figure it all out for you in most cases.

The install guide provides you with this partitioning page, that explains how you go through the partitioning step, plus an informational section *5. Partitioning Plan*.

You need to decide whether you want a separate home partition, and how much space you want to dedicate to Linux (if you are dual-booting). *5. Partitioning Plan* provides some explanations to help you make better decisions. It also contains a list of all the partitions you need.

**Note:** If you are new to Linux or have never partitioned your drive then we recommend you to read *5. Partitioning Plan* before commencing further in this section.

### Guided partitioning

The Anaconda partitioning menu is designed to give you offers for sane default choices, but if you wish you can take full control of your partition layout. To install Fedora alongside Windows some manual interaction is needed.

1. Click on on the drive you want to install Fedora to. Usually this is something like *sda*.
2. Next select *Manuelle Konfiguration der Partitionierung*
3. Click the *Fertig* button and continue to the advanced partitioning screen
4. From the drop down menu select *Traditionelle Partitionierung* and click *Diese automatisch generieren*
5. Now click the *Fertig* button again

Carefully read summary that is presented on the screen. Pay attention that no existing partitions are deleted or formatted, as this will destroy data. Shrinking an existing partition is fine.

Compare the summary with your partition plan and make sure all the required partitions are created. If so, you can continue. If not, you can manually partition your disk using *Create Partition Setup*. Should you not feel confident in what you are doing, feel free to ask one of the helpers to assist you.



## 5 Partitioning Plan

This is an overview designed to help you in the partitioning step and teach you some of the Linux file system basics.

**IMPORTANT:** Please check again whether you have a Legacy setup or use EFI. Check the questionnaire again if you cannot remember.

### EFI

This is only relevant if you have a system using EFI. EFI systems require a special boot partition to boot from, called the *ESP (EFI System Partition)*. It will likely already be present on your system as `/dev/sda1` or `/dev/sda2` (see below for more details) when Linux is booted up. If you use EFI but it isn't present then please ask for more help.

### Home partiton

The home folder is where all your personal files and user configurations are stored. It is possible to move it to a separate partition. That means your files will be physically separated from your system. Most installers do this automatically by default, but you can decide to not use a seperate home partition.

- Advantages
  - You can easily switch to a different distro and keep all your files and configuration.
  - It is easier to create a full backup of just your files.
- Disadvantages
  - You have less flexibility in managing your disk space. If you install lots of programs, your root partition might be full even though there's still a lot of space left on your home partition. This would not happen if you did not have a separate home partition. If you only have little disk space to spare for Linux, this can be a real problem.

With OpenSUSE, disabling the creation of a separate home partition is easy and straightforward. Refer to *4. Partitioning – OpenSUSE* for more instructions.

In Ubuntu, though, there is no simple option to disable a separate home partition. If you don't want one, you will have to manually partition your disk. Refer to *4. Partitioning – \*buntu* for more instructions. Our helpers will gladly assist you if you're uncomfortable with doing this on your own.

### Swap partiton

This is a partition which can be used to extend your RAM, and is required for hibernating your laptop. There are no disadvantages in having one, and thus we highly recommend it. Your installer should automatically create one for you but you can decide to not use a swap partition.

### Disk space needed for Linux

Another decision you have to make here is how much of your disk space you want to dedicate to Linux. This mostly depends on how much you intend to use it and what for.

In theory, Linux can be used with very little space at the expense of functionality. But we want you to experience Linux and many of its features so we came up with the following recommendations. If you have little space to spare then try to give Linux 20 GB. This should suffice for most but we recommend you give Linux 40 GB or more to have enough headroom for even the largest of program.

The following 3 aspects can be helpful in your decision:

1. *What will you use Linux for?* This is a minimal requirement and indicates how much space you should give at least to Linux. If you just want to play around with Linux without downloading / installing lots of things, you can decide around 5–10 GB. However, keep in mind that changing a partition layout is cumbersome—you might regret this choice later when you start to like Linux more and want to switch to it. If you want to actively use Linux for some time, 20–50 GB are recommended at least. Finally, if you want to make Linux your main system, you need to additionally allocate enough space to contain all your personal data.
2. *How large is your drive?* If you have a large hard drive (say, 1 TB or more), space is not very important and you can easily give your Linux a few hundred GB. If your space is limited though, think carefully which system you will use more, then give that system more space. Make sure your existing operating system has at least 10 GB of free space after shrinking (for installing updates).

3. *How much space does your existing data take?* The more data you have, the more important it is to know what system to put it on. Make sure your main system has enough space to contain all your data plus the space for the system. Linux and its installed programs usually take up between 5–15 GB of disk space.

Choosing the right size is tricky because it requires you to anticipate your future behaviour. Ask a helper if you need personal advice.

### The partitions you need

This is a list of the partitions you need. The installer should automatically figure this out for you—in most cases you won't need this list. We include it as a reference in case you need to manually set up your partitions.

- **Root partition**
  - Create this partition yourself
  - File system type: *ext4*
  - Mount point: */*
  - Recommended size: 20 GB if you want a home partition, otherwise as large as possible.
- *Optional:* **Home partition**
  - Create this partition yourself
  - File system type: *ext4*
  - Mount point: */home*
  - Recommended size: As large as possible.
- *Optional:* **Swap partition**
  - Create this partition yourself
  - Type: *swap*
  - Mount point: *none*
  - Recommended size: About 2GB more than you have RAM.
-  *EFI only:* **ESP (EFI System Partition)**
  - This partition should already exist and is usually automatically detected—usually being the first or second partition. You should not change any of its properties except for the mount point.
  - File system type: *FAT32* (This should already be set. DO NOT FORMAT THIS PARTITION!)
  - Mount point: */boot/efi*
  - Recommended size: 200MB (This should already be the case. DO NOT CHANGE THE SIZE.)

## 6 Testing

Congratulations, you just finished the basic installation! It's now time to find out whether everything went smoothly. There are some things you should try right now to recognize any problems as early as possible.

### Test your old operating system

Please start up your old operating system to test whether it still boots properly. Make sure your files are still present and intact (if you have multiple partitions, this allows you to detect whether you accidentally deleted one). Don't be worried if your old operating system boots a little slower — this is fairly normal. If your old system does not boot anymore or if partitions, i.e. some files are missing, please ask one of the helpers. However, there is not much we will be able to do if you accidentally deleted one of your partitions. We might be able to restore part of your files, though.

### Testing your new Linux System

After you've verified that your old operating system still works, reboot your laptop and select your newly installed Linux. You will want to test a few things here as well.

**IMPORTANT:** WiFi and graphics might not be working at this stage.

The following tests allow you to see if there are any problems. In *7. Distribution Configuration*, you will run a few steps that might solve some of them.

Please check the following items:

- WiFi: Does your laptop see the surrounding wireless networks?  
**Note:** If you installed OpenSUSE you can skip this for the moment. You will need to enable a network setting anyway. Refer to *7. Distribution Configuration* for instructions.
- Touchpad: Is it working? Can you scroll (maybe with 2 fingers)?
- Touchscreen: If you have one, it should work out of the box. Also, the click should happen right below your cursor, otherwise it will need to be calibrated.
- Graphics: Your screen shouldn't be flickering. The resolution should be suitable for your eyesight. Are you able to change the screen brightness? The more detailed settings will follow later. For now it's just important that the screen works and is not flickering or driving you crazy in any other way.
- Sound: Play a YouTube-Video to hear if your speakers work. Press the volume buttons to check whether volume is adjusted correctly.
- Bluetooth: Check if your Bluetooth adapter is detected by the system.
- Other: Do you see anything else that isn't working as you think it should?

**Note:** If you run into problems other than WiFi or Graphics—which will be fixed in in *7. Distribution Configuration*—while testing these things, please call a helper. They will help you fix these problems before you continue.

### Return your hardware

At this point, you probably won't need your USB installer anymore. You can return it at the supply desk and get your Legi back. Please also return any other hardware you borrowed from us.



## 7 Distribution Configuration

This section helps you to complete your setup and make your system fit you. A list of tips for ETH students (using the built-in VPN, connecting to ETH WiFi and more) is included.

First, you will find instructions specific to your distribution. If you don't know how to start the programs described below, have a look at the next section. It will get you started with the basics of your Desktop Environment.

Once done configuring your distribution, the next section will contain instructions to use and configure your Desktop Environment.

### Network configuration and host name

Hit the Super key (The Windows key) to open an overview of your active Window. Now start typing *Netzwerk/Network* and select the menu entry as it shows up. Here you can connect to the WiFi. At a later point you can also add VPNs here.

Should you have trouble connecting to the WiFi, please call a helper.

Click the *Zurück/Back* arrow in the upper left corner of the network settings to get back to the main page of the settings. Now go to *Details*. Here, among other information, you can see and change the name of your computer. This name is used as your hostname. If you don't know what that is, just choose any name. Don't include any sensitive information in it though (putting your living address in there is probably a bad idea).

### Upgrading and important packages

You should update your system as soon as possible to get the newest packages after the installation.

- Recommended method: Try to turn off your system and agree to install the newest updates. This is the safest way to perform any updates.
- GUI method: start the program *Software*. At the top of the window select *Aktualisierungen* and then use the *Alle aktualisieren* button.
- Console method: `sudo dnf update` (Note: the first time you run sudo, it warns you to act responsibly.)

### Finding software & packages

Fedora offers a vast collection of software by default. However there are some packages that are not available in the main repositories. Most of them can be found in the *RPM Fusion Repository*. Run the following commands to add it `sudo dnf install https://download1.rpmfusion.org/free/fedora/rpmfusion-free-release-$(rpm -E %fedora).noarch.rpm https://download1.rpmfusion.org/nonfree/fedora/rpmfusion-nonfree-release-$(rpm -E %fedora).noarch.rpm` and `sudo dnf update`

Call a helper or visit <https://rpmfusion.org/Configuration> for more detailed instruction.

### Connecting to ETH WiFi

Set the *Authentication* field (usually 2nd from top) to *Tunneled TLS* and *Inner Authentication* to *MSCHAPv2*. Fill in your ETH credentials into *User Name* and *Password* in the bottom (for the eduroam network, type `yournethusername@ethz.ch` as username). Leave the other fields as they are. Confirm that you don't want to use a CA certificate.

### Connecting to ETH VPN

Under Linux, there's no need for Cisco AnyConnect. Instead, use the *openconnect* package: The *NetworkManager-openconnect* plugin for Networkmanager needs to be installed:

```
sudo dnf install networkmanager-openconnect
```

With this done, you can now connect to the ETH VPN:

1. Hit the Super key (Windows Key) and type *Netzwerk*. Select the presented settings entry
2. In the settings for your network use the *+* button to add a new connection.
3. Select *Cisco AnyConnect kompatibles VPN* from the list
4. Enter a name on top (e.g. ETH VPN), then in *VPN > Gateway* enter `sslvpn.ethz.ch`, save (leave all options as they are).
5. Click on the network icon in your system tray again, and select your newly created network under *VPN connections*.



## NVIDIA Graphics drivers

On some devices you might need extra proprietary graphics drivers for your NVIDIA graphics card.

1. Add the *RPM Fusion Repository* as discribed above
2. Run the command `dnf install xorg-x11-drv-nvidia akmod-nvidia "kernel-devel-uname-r == $(uname -r)"`
3. Run the command `dnf update -y`
4. After this is done, reboot your computer.

## Using the package manager

If you are allready familiar with package managers, you will find that `dnf` works similar to most other package managers. If you never used a package manager this small introduction will teach you the basics of the `dnf` package manager.

- Searching for packages: `sudo dnf search <search-string>`
- Installing packages: `sudo dnf install <package-name>`
- Removing packages: `sudo dnf remove <package-name>`
- Updating all packages: `sudo dnf upgrade`
- Updating specific packages `sudo dnf update <package-name>`
- Listing installed packages `sudo dnf list installed`
- Listing available repos `sudo dnf repolist`
- Adding a repo `dnf config-manager -add-repo <repo-url>`
- Enabling a repo `dnf config-manager -set-enabled <repo-id>`
- Disabling a repo `dnf config-manager -set-disabled <repo-id>`

At this point, any problem you detected in the Testing Section should be solved. If not, don't hesitate to ask a helper.

## 8 Desktop Environment Configuration

### Overview

The interaction with GNOME almost entirely takes place in the top left corner. It serves as a start menu, application launcher and window picker at once. To get to it, either move your mouse to the very top left corner or press the Super key (“Windows key” or “Command Key”) on your keyboard.

In the center of the screen, all open windows are displayed and you can switch to them with a click. If you start typing, a search for the text you entered (e.g. Firefox) will be launched. Also, note the personalizable quick launch bar in the left. Finally, in the right edge, you find multiple workspaces. If you find that you have too many windows open, you can move them to a free workspace in that section. A new empty workspace is automatically created. When all windows are dragged out of a workspace, it is automatically deleted.

### Keyboard Shortcuts

Most keyboards shortcuts you know are also valid in GNOME. For example, use *Alt+F4* to close a window or *Alt+Tab* to switch between applications. Special in GNOME / Unity: *Alt+§* will change between windows of the same application. To quickly switch between workspaces, use *Ctrl+Alt+Up/Down*.

### Keyboard layout

If you don't have the correct keyboard layout set (which usually becomes evident when you press *z* and the laptop types *y* instead, or vice versa), you need to change it.

1. Open your launcher by clicking in the top left corner or pressing the *Windows* or *Command* key. Search for *Language*.
2. Click on *Region and Language* in the search results.
3. Under *input sources*, you can see the keyboard layout(s) you currently have in use. You can have more than one.
4. To add a layout, click on the plus icon, search for the correct layout (e.g. *German (Switzerland)*), select it and click on *Add*.
5. To remove a layout, select it and click on the minus icon.
6. If you have more than one active layout, you can switch between them by pressing *Super* (i.e. *Windows key* or *Command key*) and *Space*.

### Theming

If you dislike the rather bland default look, consider using a theme. There are plenty available on the internet, but one of the nicest is the Arc theme. On <https://github.com/horst3180/arc-theme> (under Installation) you will find instructions on how to install it.

There are also icon themes, that will exchange the icons to get a nice uniform look across the entire system. Nice examples are: Numix: <https://github.com/numixproject/numix-icon-theme> or Moka: <https://github.com/moka-project/moka-icon-theme>.

### Tweak Tool

Under GNOME and Unity there is a specialized application called the *GNOME tweak tool* that can be used to configure various settings, much like the Control Panel under Windows or the System Preferences under OS X. Unlike the GNOME / Unity settings center, the GNOME tweak tool focuses on slightly more specific settings that may be especially interesting for power users. The name of the tool is misleading as it can tweak both GNOME and Unity.

To use it, first install the package *gnome-tweak-tool* (refer to the previous pages to learn how to install software).

Once you have opened the program, you are greeted with various categories arranged in a list on the left-hand side of the application window. It's best to experiment with these settings yourself. To make it easier to find what you're looking for, here's a quick run-down of what can be configured in the different categories:

- **Appearance:** Choosing between themes and turning animations on/off.
- **Desktop:** Setting visibility of desktop icons and changing the background of both desktop and lock screen.
- **Extensions:** Turning on and off various GNOME Shell extensions that can be downloaded on the official GNOME website.
- **Fonts:** Setting font size and style.



- **Keyboard and Mouse:** In this category you can enable/disable rather specific mouse and keyboard settings such as keythemes. Note that more general settings for keyboard and mouse, like setting keyboard shortcuts or changing the mouse sensitivity, can be accessed in the GNOME settings center (for GNOME users) or in the System Settings (for Unity users).
- **Power:** Configure actions for when the power button is pressed or when the laptop lid is closed.
- **Startup Applications:** Add applications that are executed on login.
- **Top Bar:** Show/Hide elements on your top bar (the bar at the top of your screen that tells the time).
- **Typing:** This category contains a *lot* of settings for configuring what your mode keys (control, shift etc.) do. You can also add keyboard options for typing non-latin letters.
- **Windows:** For configuring the behaviour of window focus, and titlebar actions.
- **Workspaces:** Tuning workspace creation settings.

## 9 The End

**Congratulations!** You are now the proud owner of your personal Linux laptop. Have a lot of fun with it!

On the last page of this guide, you will find a table that lists alternatives for programs that are not available under Linux. The software products you're used to might not work on Linux, but there are always alternatives that you can use. Check them out!

You can now continue playing with your new Linux system, or you can go home. Be sure to return all the hardware you borrowed before you leave. Also return your USB key, please.

And if you want to help us, consider filling out a feedback form. You can get these at the welcome desk. Your feedback is very important to us and will help us improve these events even more.

If you were to run into issues with your Linux system some time later, we won't leave you hanging! We have a regular Stammtisch where you can meet us, and we'll help you solve your Linux problems there. You can find our Stammtisch dates on our website, and you can just drop by without signing up. Of course, you can also stop by if you don't have a Linux problem and just want to talk to us!

And if you want to become part of our team, just ask! We're always looking for new members. Linux knowledge is not mandatory—if you like what we do and would like to help and learn, you are very welcome. Just ask one of the helpers!

Cheers, and thank you for attending  
your TheAlternative team

**Office**

Office suite	LibreOffice
PDF reader	Evince, Atril, Okular
Notetaking, PDF annotation	Xournal
LaTeX Editor	Texstudio, Texmaker
Mindmapping	VYM
Design/Publishing	Scribus
Simple Text Editor	Gedit (GNOME), Kwrite (KDE), Leafpad (XFCE)
Advanced Text Editor	Geany (GNOME, XFCE), Kate (KDE)
Power User Text Editor	vim, emacs
Advanced file manager	SpaceFM, Nemo (GNOME), ranger
CAD	FreeCAD

**Graphics**

Image editing	GIMP
Vector drawing	Inkscape
3D design	Blender
Photo management	Darktable, Digikam
Scanning	Skanslite (KDE), SimpleScan (GNOME, XFCE)
OCR Text Recognition	OCRGui using Tesseract / GOCR

**Multimedia**

Video Player	mpv, VLC, Totem (GNOME)
Music Player	Amarok (KDE), Banshee (GNOME, XFCE), GNOME Music, Clementine
CD ripping	Audex (KDE), cdparanoia
Audio editing	Audacity
CD/DVD burning	K3b (KDE), Brasero (GNOME, XFCE)
DVD ripping	Handbrake
Audio tagging	Picard, EasyTag
Video editing	Kdenlive (KDE), Openshot (GNOME)
3D animation	Blender
DAW	Ardour
Youtube Downloader	youtube-dl
Screen recording	RecordMyDesktop, SimpleScreenRecorder

**Scientific**

MatLab	Python with Numpy, Octave
Statistics	R, PSPP
ArcGIS	GRASS GIS, QGIS

**Internet**

Web Browser	Firefox, Chromium
Mail	Thunderbird, KMail (KDE), Evolution (GNOME)
Instant Messenger	Telegram, qtox, Pidgin, Empathy (GNOME)
IRC chat	Hexchat, Quassel, weechat, irssi
Torrent client	Ktorrent (KDE), Transmission (GNOME, XFCE), Deluge, rtorrent
Voice over IP	qtox, Mumble, Empathy (GNOME)
FTP Client	Filezilla
File synchronization	Syncthing, ownCloud, Seafile
Live Streaming (Twitch.tv, etc...)	livestreamer

**System**

Check disk usage	Baobab (GNOME), Filelight (KDE), ncd
Virtualization	VirtualBox, GNOME Boxes (GNOME), Virt-manager
Backup tool	Deja Dup, rsync, borgbackup
Advanced system monitor	htop
Advanced window compositor	compton (XFCE)

**Development**

IDE	Eclipse, IntelliJ, Code::Blocks, Android Studio, Geany, vim, emacs
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**Speed up your workflow**

Program Launchers	WhiskerMenu (XFCE)
Clipboard Managers	Glipper (GNOME, XFCE)
Dropdown Terminal	Guake (GNOME, XFCE), Yakuake (KDE)