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!

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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   ☐ 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.

_____

_____

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 Unity 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.
Suggestions: Beginners
DEs: Unity, Xfce (with Xubuntu), KDE 5 (with Kubuntu), Gnome (with Ubuntu 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 user. It is famous 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 (versionned 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.
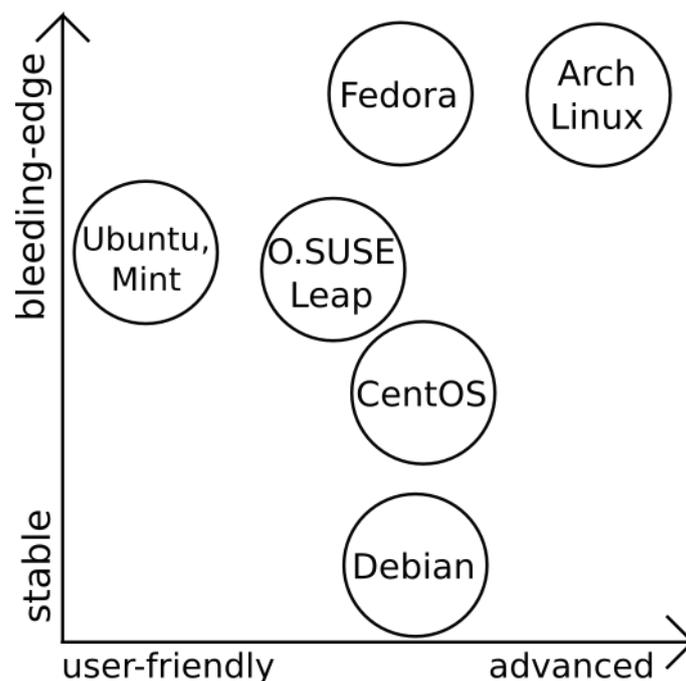
Desktop Environment Flowchart

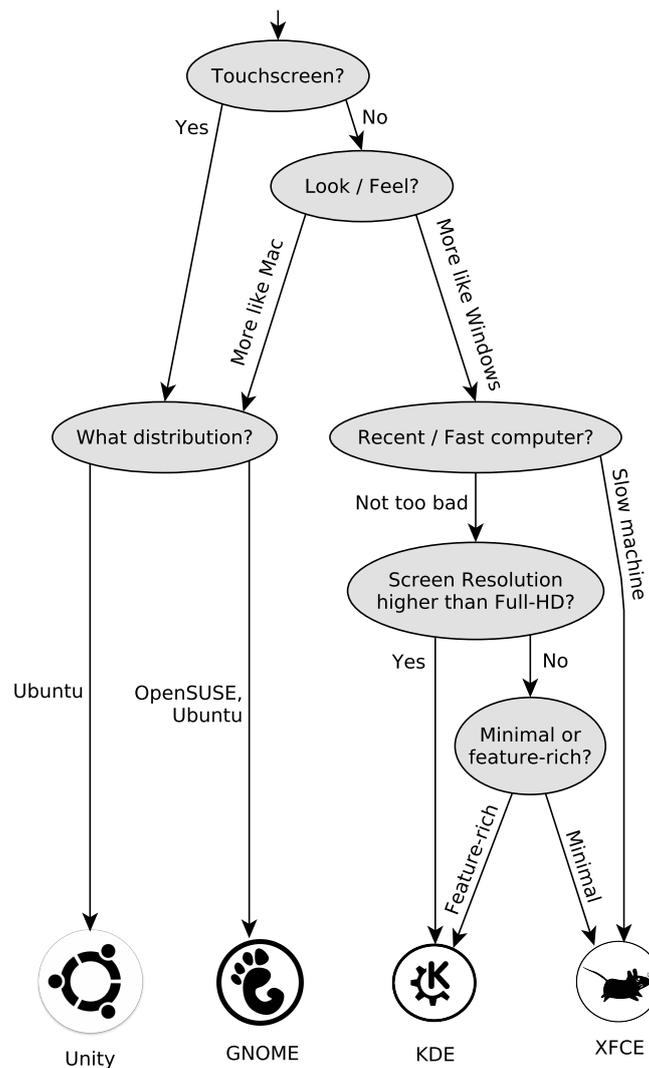Apart from the distro, you also need to choose a Desktop Environment (DE) for your new Linux system.

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 partititions 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).

BIOS configuration

We will now check a few settings in your hardware. For this, you need to get to your BIOS setup. Shutdown your computer. Then, turn it back on, holding the magic button - which one it is depends on your model:

– HP laptops: Typically *Esc*, this will then give you a menu where you can pick the BIOS setup pressing *F10*

– Lenovo: Typically *Enter*, this will then give you a menu where you can pick the BIOS with *F1* or *the arrow keys*

– Dell: Typically *F2*

– others: Try holding *Esc*, *Enter*, *Del* and as many *F-keys* at once as you can. Every time Windows comes up, reboot and try again. Alternatively you can google the right key to get into the BIOS on your machine.

It can be tricky and frustrating to get into the BIOS. Don't hesitate to ask for help.

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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. Turn off your machine and plug the install USB key into your laptop. Now, you will need to turn your machine on again and find the magic button for choosing a temporary startup device on your model. Try pressing these buttons during startup (i.e. when you see your laptop's logo on the screen):

– HP laptops: Typically *Esc*, this will then give you a menu where you can pick a temporary startup device by pressing *F9*

– Lenovo: Typically *Enter*, this will then give you a menu where you can pick a temporary starup device using *F12* or the arrow keys

– Dell: Typically *F12*

– others: Try holding *Esc*, *Enter*, *Del* and as many F-keys at once as you can. Every time Windows comes up, reboot and try again.

Again, our helpers are experienced with this, they can help you. Once in the correct menu, pick the USB key and press *Enter*.

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

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.

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2. In the opening window, select *Clean up system files*, select as many boxes as you can and press *ok*. This takes a while.

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– A new window opens up. Take a look at the bottom half of the window, where you should see a graphical representation of which partititions 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 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.

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.

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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.

Shrink your OS X partition

On Macs, we will resize your existing partition before the installation of Linux. The idea is to shrink your OS X partition in order to make space for your new Linux system.

1. Go to *Applications/Utilities* and open the *Disk Utility*.

2. Select your main disk in the list to the left (usually the first or the largest).

3. Select the tab *Partition*.

4. On the left side there is a white rectangle with some blue threshold indicating the space consumed by Mac OS X.

5. Click and hold the lower right corner of that rectangle and draw the cursor upwards, to shrink the volume.

6. The text on the right will give you information about the freed memory.

7. If you are unsure as to how much space you need for Linux, please refer to *5. Partitioning Plan*.

8. Once you are satisfied, click *Apply* to confirm the shrinking operation.

Install rEFInd

Unlike on PCs, we will install the bootloader on Macs before the installation. *rEFInd* will boot your USB Install Medium as well as your operating system later on.

1. Browse the web for http://www.rodsbooks.com/refind/getting.html and scroll down a bit to click the link *A binary zip file*.

2. Wait a moment for the download.

3. Go to the *Download folder* and extract the file.

4. Open a Mac terminal by going to *Application/Utilities* and opening *Terminal*.

5. Type `cd␣` (with a space afterwards, but do **not** press *Enter* yet) and drag the extracted folder into the terminal.

6. Now, hit *Enter* and then type `./refind-install`.

7. When prompted for your password, enter it.
   Note: You won't see what you enter at the password prompt at all. You have to enter your password blindly.

In case you get an error message saying *ALERT: SIP ENABLED*, you need to do the following:

1. Turn off your Mac and start it again, pressing *Cmd+R* immediately after turning it on again (you might want to hold it for a while).
2. Your Mac should boot in *recovery mode*. Go to *Utilities* and open up a terminal.
3. Now type: `csrutil disable`.
4. Then reboot back into your normal system and try to install *rEFInd* again.
5. After installation, feel free to go once more into recovery and type `csrutil enable`.

2   Boot

We will now boot from your USB Install Medium.

1. Plug your USB Install Medium into your laptop.
2. Reboot your machine and *rEFInd* should see the USB key.
3. Your USB installer may have several ways to boot. They all will show up and have a little USB icon to the bottom right.
4. Usually the first USB installer is correct. If it doesn't work, reboot and try the others, or ask a helper.
   Note: You should avoid entries that say *Legacy*.
5. If your USB installer doesn't show up, hit *Escape* to refresh the list. It should show up now.
6. If you see multiple USB keys, try each of them until you are satisfied.

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

A successful boot from an OpenSUSE Leap install medium will result in a green or black menu with an OpenSUSE logo presenting the options *Boot from Hard Disk*, *Installation* etc. If this does not occur, then either your bootstick is broken, or you are using a Lenovo device which does not support the OpenSuse installer in UEFI mode. Among those devices are the T470 Thinkpads and the Yoga 370. In the former case, request a different USB stick from the Material Desk. In the latter case, we unfortunately do not have a good solution available, and you are advised to install a different Distro.

Select *Installation* with the arrow keys and press *Enter*. Starting the installer may take a few minutes. During the process, your screen shows white text on black background and sometimes green bars.

If you see a blue menu asking whether you want to accept a new license, select *Yes* using your arrow keys and hit *Enter*.

Language and License

Here you pick your new system's language and keyboard layout.
Note: *German* and *German (Switzerland)* are not the same.

Network and options

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

Should any section come up with *Networking* please click Next.

In *Installation Options* **un**check both boxes.

Partitioning

Now we partiton your system and assign Linux some sections of the hard drive.   Please refer to *4. Partitioning – OpenSUSE* for this part.

Time

Here we set the computer's time zone. Select it by either clicking with your mouse cursor or by selecting your nearest city from the drop-down menus.
Note: If you install OpenSUSE alongside Windows, **un**tick the option *Hardware Clock Set to UTC*.

Desktop Environment

Here you select the Desktop Environment of your choice.
Note: XFCE can be found in the submenu *Other*.

User Information

Fill in your login details. Give yourself a full name, user name and password.
Note: *Automatic Login* is enabled by default. This means you will be automatically logged in when you turn
            on your PC. This is convenient, but less secure than entering your password first. If you don't want
            automatic login, untick this.

Summary screen

This is the last screen before the actual install — nothing has been committed thus far — and shows a summary of what will be done. Typically you don't need to change anything here and can just hit *Install*.

⚠ **WARNING:**   Confirming this last dialog will start the actual install.

> **Mac users please read:**
> If you use a Mac, you previously installed rEFInd as a bootloader. This means you don't need the OpenSUSE default bootloader, GRUB. In fact, installing GRUB on top of rEFInd will cause problems,

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so you will want to disable GRUB. Please do the following:
1. Click on the green text in the summary that says *Booting*.
2. A menu appears that lets you select your bootloader. In the drop down menu on the left side under *Boot Loader*, select *Do not install any bootloader.*
3. Confirm by clicking *OK*.

   Note: After confirming, the summary screen will display a red warning saying that OpenSUSE may not boot without installing a bootloader. You can safely ignore this, because you already have a bootloader (rEFInd).

⚠ **Warning:**   Do NOT perform these steps if you have a Windows system!

The install 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 OpenSUSE partitioning menu is very advanced and gives you a lot of information. The most important is the summary you see at the top. It tells you all the modifications it will do to your hard drive and highlights the potentially dangerous ones in red.

The first thing to do here is to change the file system type to *ext4*. OpenSUSE uses *btrfs* and *xfs* as defaults. The former being a newer file system with many advanced features but not fully reliable and the latter an old but robust alternative to *ext4*.

1. Click on *Edit proposal Settings*

2. For the *File System for Root Partition*, pick *ext4*.

3. If you don't want a separate home partition, untick *Propose Separate Home Partition*. See *5. Partitioning Plan* for more details on this.

4. If you want a separate home partition, select *ext4* for the *File System for Home Partition*, then click ok

The summary on the top should now be noticeably shorter. Carefully read the entries. 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*.

Mac users please read:

If you have a Mac, you will need to perform some additional setup here to make OpenSUSE work with the rEFInd bootloader you previously installed:

1. Click on *Expert Partitioner*.
2. On the left hand side, click on your main drive (usually sda).
3. You now see a list of partitions. Select the one labelled as *EFI System Partition* or similar.
4. Click on *Edit...*
5. You should see a dropdown menu that is currently set to */boot/efi*. Click inside the menu so that you can change the text. You need to change the text using your keyboard because the option you need is not in the dropdown menu.
6. Change the text to */boot*
7. Now, click *Finish*.
8. In the partitioner, click *Accept*.

   Note: The installer will display a warning at this point, saying that openSUSE won't be able to boot with this setup. You can safely ignore this warning because you have rEFInd installed, which can still boot openSUSE. When the warning appears, just click *yes*.

   Note: After the first warning, yet another warning appears, saying that you install on an existing partition without formatting it. This is also fine. OpenSUSE will put its boot files next to the boot files used by Mac OS X, which is okay. Click *Yes*.

If you feel uncomfortable during this step, feel free to ask a helper.

⚠ **WARNING:**   Do NOT perform these steps when you have a Windows PC!

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You can now go back to *3. Installer overview – OpenSUSE* and follow the remaining instructions if everything looks fine.
Note: If something looks wrong, please read the text box below.

> **Help, my partitions are being deleted!**
> There are two main reasons for this:
> – *You have the MBR partition scheme, and you already had four main partitions.* In this case, you need to delete one partition — there's no way around it. Now you need to make sure the partition that's deleted is not important. On HP laptops, you often find a partition called HP-TOOLS which doesn't contain anything important. On other laptops, you may find a windows recovery partition that you can get rid of. Ask a helper if you're not sure about this.
> – *Your existing Windows/Mac OS partition can't be shrunk.* This can be a major problem. Try manually creating a partitioning setup using *Create Partition Setup*. If that doesn't work, please ask a helper.

Manually partitioning your disk

Ideally, the automatic partitioning suits your needs and you don't need to do this. But if the automatic tool fails, you can try creating your partitions by hand. To do this, click on *Create Partition Setup. . . .*

1. Choose *Custom Partitioning (for experts)* and click *Next*.

2. Click on *Hard Disks* on the left. Expand that section by clicking on the small arrow next to it. Then, pick your main drive, usually *sda*.

3. You should see a list of all your current partitions. If you haven't already done that from within Windows or Mac OS X, you should now shrink your existing operating system partition (that should be the largest in size).

    (a) Select the partition in the list and click *Resize...* at the bottom.

    (b) Choose *Custom Size* and enter a new size in the text field. A good measure is to use halve it.

    (c) Click *OK*.

4. Now create all the partitions you need.
    Note: If you have MBR, you first create an *Extended Partition* and make it as large as possible. This partition serves as a container for more, smaller partitions.

    (a) Click *Add...*

    (b) Select your partition size according to *5. Partitioning Plan*. Click *Next*.

    (c) Select your partition's usage. *Operating System* is for the root partition, *Data and ISV applications* is for your home partition and *Swap* is for your swap partition. Click *Next*.

    (d) Under *Format Partition*, select the file system you need according to *5. Partitioning Plan*. Under *Mount point*, choose the mount point you need. Click *finish*.

5. You can also edit the mount point and formatting options of existing partitions by selecting them and clicking on *Edit. . . .*
    Note: This is sometimes required in order to designate an EFI boot partition.

You can now go back to *3. Installer overview – OpenSUSE* and follow the remaining instructions if everything looks fine. If not, please ask for help.

3 Installer overview

Starting the installer

The behaviour of the Ubuntu installer differs slightly depending on whether you have an EFI or Legacy system.

On an *EFI* system, a text menu pops up.

1. Select *Install Ubuntu* using your arrow keys.
2. Confirm with *Enter*.
3. **Note:** If you wait for too long, the menu will disappear and use the default option *Try Ubuntu*. If that happens, wait for the system to start up completely and then use the shortcut *Install Ubuntu* that appears on the desktop.

On a *Legacy* system, a loading screen appears, and after a while you will be prompted whether you want to try or install Ubuntu. Select *Install Ubuntu*.

If you want, you can now plug in an ethernet (LAN) cable to your computer. If you don't have a LAN port, you can get a LAN to USB adapter at the Supply Desk.

Welcome screen and preparation

1. Ubuntu now asks for your preferred language. Select it and press Next.
2. If you don't use an ethernet cable, the installer will now ask you to connect to a WiFi network. You can use the ETH WiFi. Do not use the Public WiFi. If you can't get it to work right away, select *Don't connect to a WiFi network* and continue without an internet connection. Don't worry, you can upgrade your software later on.
3. Be sure to select to install 3rd party software.
4. If you are connected to the Internet, you may check the box that installs updates during install.
5. After pressing Next, you will arrive at the partitioning screen. Please refer to *4. Partitioning – *buntu* for more information on this.

Partitioning

Now we partition your system and assign Linux some sections of the hard drive. Please refer to *4. Partitioning – *buntu* for this part.

Language and keyboard

Here, we will set the

1. After partitioning, the installer will ask you where you are. Select the according city. This will affect the time zone settings of your new Ubuntu. Click *continue*.
2. On the next screen, you can set your keyboard layout. If you don't know what it's called, click on *Detect Keyboard Layout* and follow the instructions.

User account

1. Now, you will create your user account. Fill in the details in this form.
2. Note that you can give your computer a name. Name it something cool!
3. You can select whether you want to be logged in automatically when you start your PC or not. That is more convenient, but less secure. Pick whatever you want.
4. If you're concerned about security, you can encrypt your home folder by ticking the corresponding box. Note that this might slow down file access. There are better options of encrypting your laptop than this - if you're interested in that, ask a helper.
5. If you're done, click *Continue*. The install will now start. This will take a while - take a break and get some food.

Once the process has completed, the computer will ask you to reboot. Proceed, the system will then ask you to remove the installation media (e.g. the stick we gave you). Unplug it and press Enter to complete the reboot. When the boot manager (GRUB or rEFInd) shows up, press Space to pause the countdown. Then, proceeed to the section *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 Ubuntu installer will try its best to find the optimal partitioning for you. Still, it is important that you check all these changes to prevent things from going wrong.

In the *Installation Type* menu, you can select whether you want to keep your existing Operating System or throw it away.

1. Pick the option you want and click on *Install Now*.

2. If you install Ubuntu alongside something else, you can now decide how much space you want to give it. Then click on *install now*.

3. A dialog will pop up that summarizes the changes to be made.

4. Carefully look through the changes. Check that all the partitions you need according to *5. Partitioning Plan* are created.

5. Make sure no important partitions are deleted or formatted. Ask a helper if you're unsure about this.

6. If you see no issues, click *Continue*. and configure your installation according to the overview.

> **Help, the option I want is not here!**
> If you want to install Ubuntu alongside Windows or Mac OS, but that option is not available, the Ubuntu installer wasn't able to determine a feasible partitioning for that. In this case, pick *Something else...* and manually partition the disk.
> **Help, my partitions are being deleted!**
> There are two main reasons for this:
> – *You have the MBR partition scheme, and you already had four main partitions.* In this case, you need to delete one partition — there's no way around it. Now you need to make sure the partition that's deleted is not important. On HP laptops, you often find a partition called HP-TOOLS which doesn't contain anything important. On other laptops, you may find a windows recovery partition that you can get rid of. Ask a helper if you're not sure about this.
> – *Your existing Windows/Mac OS partition can't be shrunk.* This can be a major problem. Try manually creating a partitioning setup using *Create Partition Setup*. If that doesn't work, please ask a helper.

Manually partitioning your disk

Ideally, the automatic partitioning suits your needs and you don't need to do this. But if the automatic tool fails, you can try creating your needed partitions by hand. To do this, pick *Something else...*

1. You see a list of your current partitions. If you haven't done that alraedy from within Windows or Mac OS X, you should now shrink your existing operating system partition (usually the largest in size).

   (a) Select the partition in the list and click *Change...* at the bottom.

   (b) Enter a new size in the text field. A good measure is to use half the current size. Linux needs at least 20GB (20000MB). In the *Use as* dropdown menu, select *Do not use the partition*.

   (c) Click OK. You should now see some free space in the list.

2. Now create all the partitions you need. If you have MBR, it is advisable to select *logical* as a partition type, if possible.

    (a) Select the free space in the list, and click on the plus icon.

    (b) Select your partition size according to *5. Partitioning Plan*. Note that the size here is in MB.

    (c) Select your partition's usage. *Ext4 journaling file system* is for the root and home partition, *Swap area* is for your swap partition.

    (d) Under *Mount point*, choose the mount point you need according to *5. Partitioning Plan*. Click *OK*.

3. You can also edit the mount point and formatting options of existing partitions by selecting them and clicking on *Change...*. This is sometimes required in order to designate an EFI boot partition.

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.

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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 you 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 selec *Traditionelle Partitionierung* and click *Diese autamatisch 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.

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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).

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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.

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7   Distribution Configuration

This section helps you to complete your setup and make your sytem 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

Makes sure that NetworkManager is handling network connections:

1. Open *YaST* from your start menu.
2. Go to *System > Network settings*.
3. Under global options, select *NetworkManager* service as Network Setup Method.

After doing this, you should test whether your WiFi works. If it doesn't, please call a helper.

Broadcom WiFi   If your WiFi still isn't working, it might be that you have a Broadcom WiFi chip in your laptop, which needs additional drivers.

⚠ WARNING: These steps only apply when you have a Broadcom chip. You can check whether you have one by running `sudo lspci | grep -i broadcom`. If no text is shown, you don't have a Broadcom chip.

1. First, you need to add the Packman repository. To do this, refer to the section *Get more codecs* at the end of this chapter.
2. After adding the new repository, open *Software Management.*
3. In the search box, enter *broadcom-wl* and hit *Enter*.
4. The search results appear on the right side. Tick the package named *broadcom-wl*, and click *accept* to install it.
5. Reboot your laptop. Wifi should work now. If not, please ask a helper for assistance.

Upgrading and important packages

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

– GUI method: start the program *Online Update* (in German: *Online-Aktualisierung*)
– Console method: `sudo zypper up` (Note: the first time you run sudo, it warns you to act responsibly.)

Note: If you see an error message about a missing repository, go to YaST > Software Repositories, select the offending repository, and delete it. This repository is your installer USB drive, which you don't need anymore.

Finding software & packages

If you are looking for a package from the OpenSUSE repositories or the community repositories, you use *YaST*'s Software Manager or search for your package on http://software.opensuse.org.
Alternatively, use the command line: You can also search for packages: `zypper se your-search-term`
Install a package using: `sudo zypper in your-favourite-package`
Uninstall a program using: `sudo zypper rm package-to-uninstall`

Connecting to ETH WiFi

Set the *Authentification* field (usually 2nd from top) to *Tunneled TLS* and *Inner Authentification* to *MSCHAPv2*. Fill in your ETH credentials into *User Name* and *Password* in the bottom (for the eduroam network, type yournethzusername@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:

- If you are using KDE, install *plasma-nm5-openconnect*:
  ```
  sudo zypper install plasma-nm5-openconnect
  ```
- Others (GNOME, XFCE, ...): install *NetworkManager-openconnect*
  ```
  sudo zypper install NetworkManager-openconnect
  ```

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

1. Click on the network icon in your system tray.
2. Now in your WiFi menu, pick *VPN Connections* (you may have to right click your network icon to see the option).
3. *Add a VPN connection....*
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. Open *YaST*
2. Go to *Software > Software Repositories > Add > Community Repositories > NVIDIA Graphics Drivers*.
3. Open the console.
4. Run the command `sudo zypper inr`.
5. After this is done, reboot your computer.

If that does not work you might want to try the following after step 2:

- Go to *Software Management*.
- Select *Extras/Install All Matching Recommended Packages*.

Get more codecs

Your system may not have support for playing mp3's, DVDs etc. yet because those are proprietary packages that some Free Software enthusiasts dislike. To get those abilities, first add a repository named *Packman*, then install the codecs:

- **Codecs: GUI method**

  Add the Packman repo:

  1. Open *YaST* from your startmenu.
  2. Go to *Software > Software Repositories*.
  3. Click *Add*.
  4. Select *Community Repositories*.
     Note: If this option is missing, connect your device to the Internet and try again.
  5. Select the *Packman Repository* and the *Libdvdcss Repository*.
  6. Click *Ok*. When a dialog pops up asking you whether you trust these repositories, click *Trust*.

  Then install the codecs:
  Open *YaST*, go to *Software > Software Management* and search for the following packages:
  k3b-codecs, ffmpeg, phonon-backend-vlc, phonon4qt5-backend-vlc

- **Codecs: Console method**
  If you prefer using the command line, you can add the repository as follows:
  ```
  sudo zypper addrepo -f http://packman.inode.at/suse/openSUSE_Leap_42.1/ packman
  sudo zypper addrepo -f http://opensuse-guide.org/repo/openSUSE_Leap_42.1/ dvd
  ```
  Then install the codecs:
  ```
  sudo zypper install k3b-codecs ffmpeg phonon-backend-vlc phonon4qt5-backend-vlc
  ```

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

7   Distribution Configuration

This section helps you to complete your setup and make your sytem 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.

Upgrading & important packages

You should update your system as soon as possible to get the newest packages after the installation. You can do this through the GUI or using the console. Either method is fine.

- **GUI method:**
  Start the program *Software Updater* (german: *Aktualisierungsverwaltung*). You can find it by typing *update* into your console on most Desktop Environments.
- Accept to install the proposed updates.
- Reboot your computer.
- **Console method:**
  This updates the repositories: `sudo apt update`
  This upgrades the packages on the system: `sudo apt upgrade` This reboots your laptop: `sudo reboot`

Finding software & packages

To install new software, you can use either Ubuntu's Software Center or the console (faster). Note that both methods use the built-in package manager, so the software you install using either method will automatically be taken care of when installing updates. That means it does not matter which one you choose.

1. Open the program *Software Center*.
2. Type the name of the software you are looking for in the search field on the top.

The Software Center is both a place to get Free Software as well as a store for magazines and programs. You can use it to install and remove packages to / from your system.

– **Console method:**

1. Search for packages on the command line using `apt search your-search-term`
2. Once you found what you were looking for, install it with `sudo apt install your-favourite-package`
3. To uninstall software, use `sudo apt-get autoremove package-to-uninstall`

Additional Drivers

- Start the program *Additional Drivers*. The system will check if your hardware needs any.
- For graphics drivers, only install them if your current performance is insufficient.
- For WiFi / network drivers (e.g. Broadcom), always install them if available.
- Sometimes, there are strange options like coprocessors, leave them unchanged.

Connecting to ETH WiFi

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

Connecting to ETH VPN

No need for Cisco AnyConnect, simply do the following:

1. Install the package *network-manager-openconnect*.

2. Click on the network icon in your system tray.

3. Now in your WiFi menu, pick *VPN Connections* (you may have to right click your network icon to see the option).

4. *Add a VPN connection....*

5. Enter a name on top (e.g. ETH VPN), then in *VPN > Gateway* enter *sslvpn.ethz.ch*, save (leave all options as they are).

6. Click on the network icon in your system tray again, and select your newly created network under *VPN connections*.

Language support

1. In the system settings, go to the point *Language Support*.

2. Your system might complain about missing translations because they didn't fit on the install stick. Tell Ubuntu to install those now.

3. You can also install additional languages (e.g. for spelling in LibreOffice).

4. The main system language can be changed by re-arranging languages (drag 'n drop).

Get more codecs

Your system may not have support for playing mp3's, DVDs etc. yet because those are proprietary packages that some Free Software enthusiasts dislike. To get those codecs, do the following:

– install the package *ubuntu-restricted-extras* (respectively lubuntu-... / xubuntu-... / kubuntu-restricted-extras).

Note: If you can't find *ubuntu-restricted-extras* in the Software Center, use the console method (see above under *Finding software*. When you do that, you will have to accept the EULA by selecting *ok* and *yes* with your arrow keys when prompted.

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

7   Distribution Configuration

This section helps you to complete your setup and make your sytem 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 you 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 your 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 offeres 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 the 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 *Authentification* field (usually 2nd from top) to *Tunneled TLS* and *Inner Authentification* to *MSCHAPv2*. Fill in your ETH credentials into *User Name* and *Password* in the bottom (for the eduroam network, type yournethzusername@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 e 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 propretary graphics drivers for your NVIDIA graphics card.

1. Add the *RPM Fusion Repository as discriped 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.

8   Desktop Environment Configuration

KDE is very similar to the Windows desktop, so you should find it easy to get around. It is also highly customizable. Pretty much anything you see can be changed in some way, just open System Settings and look around.

HiDPI

If everything looks smaller than usual or you want to enlarge the content do the following:

– *Configure Desktop > Display and Monitor > Scale Display*

– *Configure Desktop > Font >* Check *Force fonts DPI >* Set "200"

– Log out and log back in.

– If anything still looks odd, please repeats steps 1–3-

Keyboard layout

Should your keyboard layout not be set correctly, then you may adjust it like this: *Configure Desktop > Input Devices > Keyboard > Layouts >* Check *Configure layouts*

Widgets

Widgets are little applications that are placed either on your desktop or on your panel, such as a calendar or a clock. Everything you can see on your desktop when no application is open is a widget. KDE comes with lots of widgets included. You can right click anywhere on the desktop, click *Add widget...* and then browse through the various widgets available. You can place them on your desktop, drag them around, and delete them again. Most widgets also have a separate configuration.

Widgets can be placed directly on the desktop or inside a panel, most Widgets appear differently depending on whether they are placed on the desktop or inside a panel. Per default, a panel is placed at the bottom of the screen (the one that contains your start menu and notification area). You can move this panel anywhere, add new panels, or remove it entirely (not recommended). If you remove it by accident, just right click on your desktop and do *Add panel* and then *Default panel.*

Launcher

In KDE, you can easily change the look and feel of your launcher (start menu). Right click it and select *Alternatives.* You can now choose among the installed launchers. Try which one you like best.

Dolphin

Dolphin, the default file manager of Plasma desktop, is one of the most powerful file managers around. It's extremely feature rich. By default, Dolphin is configured to open any file with a single click, which can be annoying for those of you who are used to double clicking to open a file. You can change this by going to *(Start menu) > type "mouse" or "maus" >* Open *Mouse Controls > Icons > Single-click to open files and folders*

Themeing

Like most things in KDE, themes are configurable via System Settings. However, KDE has multiple kinds of themes, which can be confusing:

– *Workspace Theme > Desktop Theme*: This is the theme your widgets use. It controls the general appearance of panels, your application launcher, etc.

– *Workspace Theme > Cursor Theme*

– *Worksapce Theme > Color*

– *Application Style > Widget Style*: This is the theme applications use, for example, this changes how an applications buttons look like.

– *Application Style > Windows Decorations*: This is the theme for your window decorations, i.e. the part of each window containing the name.

Per default, all four themes are set to Breeze and the default color scheme is Breeze. Themes can be installed either directly from the respective area of System Settings or manually, which is often required for complex application styles(Virtuality, to name the most popular example).

8   Desktop Environment Configuration

HiDPI

If everything looks smaller than usual or you want to enlarge the content do the following: *Search your computer* > Enter: *System Settings* > Select *Displays* > Adjust 'Slider for menu and title bars'.

Overview

Most of the interaction with Unity takes place on the left and top edge. To the left, you find a sort of task bar with launchers. To remove a launcher (such as the annoying Amazon launcher), right click it. To move a launcher, drag it a bit to the right, then you can re-arrange it.

To open a new window of an application that is already running, right click the launcher and pick *New Window* or similar. Alternatively, just middle-click the launcher:

– If you have a mouse, press down the scroll wheel

– Some Lenovo touchpads have a middle button

– HP touchpads: Press both of the lower mouse buttons at the same time

The top launcher with the styled Ubuntu logo opens a sort of start menu, the so-called *Dash*. Type to search for installed applications, documents etc.

Unity moves menu points (*File, Edit, View, ...*) to the top bar in order to save space. Move your mouse up to see them. Also, when maximizing a window, the close / restore / minimize buttons are placed in the very top left corner, visible only when you point your mouse to the top edge.

Keyboard Shortcuts

You can use most of the keyboard shortcuts you are used to from Windows. Pressing and releasing the *Super* Key (*Windows key or Command key*) on your keyboard will open the *Dash. Alt+Tab* switches between windows (special in Unity / GNOME: *Alt+§* switches between windows of the same program). *Alt+F4* closes a window. For more keyboard shortcuts, press and hold the *Super* Key.

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.

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– **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).

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– **Windows:** For configuring the behaviour of window focus, and titlebar actions.

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– **Workspaces:** Tuning workspace creation settings.

8 Desktop Environment Configuration

Overview

Default XFCE looks similar to Windows XP. Use the panel (at the top or bottom of your screen) to switch applications. There is a classic start menu (you will learn below how to replace it with something more modern), some tray icons and a clock. In contrast to Windows though, XFCE is highly configurable. You can create as many panels as you want and let them float, autohide, be transparent and more. Right click a panel, then pick *Panel > Panel Preferences* to customize your panels. New tray applications can easily be installed using the package manager (for example, GNOME indicators and panel applets also work in XFCE).

To avoid having too many windows open, XFCE comes with so-called Workspaces (by default 2). In the right of the panel, you find two rectangles (1 being colored). When you open a window, it shows up as a smaller rectangle in the left one. Drag the small rectangle to the larger rectangle to the right to move the window to the other workspace. Click or scroll on the workspaces to switch between them. Right click to configure workspaces.

Note: If you use Xubuntu, workspaces aren't visible by default. If you want to see them, you have to enable them first. Ask a helper if you don't know how to do this.

Keyboard Shortcuts

Keyboard shortcuts in XFCE are similar to Windows: Use *Alt+Tab* to switch between windows. *Alt+F4* closes a window.

To quickly switch workspaces, you can use *Ctrl+Alt+(Arrow Keys)*.

Replace the classic start menu

XFCE's default launcher has no search function and is, in our opinion, outdated. Instead, we suggest you to install and use the so-called *Whiskermenu*. The package is called *xfce4-panel-plugin-whiskermenu* in OpenSUSE or *xfce4-whiskermenu-plugin* in Ubuntu.

Note: If you use Xubuntu, the Whiskermenu is already installed and you can skip this.

1. First, install the package through your package manager.
2. Now right click the panel, then go *Panel > Add new items* and search for *Whisker*.
3. Drag the menu to where you would like to have it.

You now have a much more powerful but still very fast start menu. Right click Whiskermenu to customize it.

Note that there seems to be no keyboard shortcut to launch Whiskermenu. The reason is that it's launched by running an external command: `xfce4-popup-whiskermenu`

Go to *XFCE Preferences > Keyboard > Application Shortcuts* to assign a key combination to the command.

XFCE Goodies: Install many little helpers

XFCE is supposed to be slim and therefore has a limited set of plug-ins that go with it. However, there are many other so-called Goodies that you can add to make it more feature-rich. All are small but sometimes useful programs.

Under Ubuntu, you can install a package called *xfce4-goodies* that contains all the Goodies.

For more info check out http://goodies.xfce.org/

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.

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	Skanlite (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

Scientifical

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 (GMOME)
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 synchrinization	Syncthing, ownCloud, Seafile
Live Streaming (Twitch.tv, etc...)	livestreamer

System

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

Developement

IDE	Eclipse, IntelliJ, Code::Blocks, Android Studio, Geany, vim, emacs

Speed up your workflow

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

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