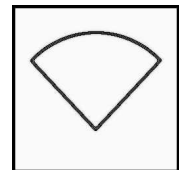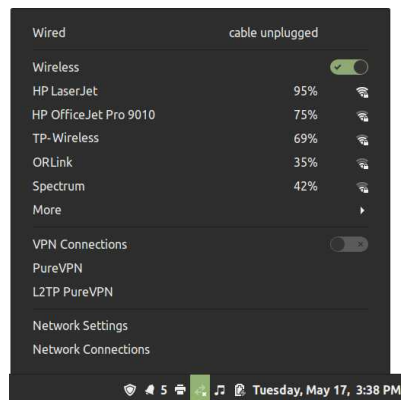# THINK PENGUIN

# The GNU/Linux Desktop



## Elements Of The Desktop

1. Main Menu
2. Quick Launch
3. Open Applications
4. Network Applet
5. Notification Area
6. Desktop Icons



## Internet Access

If you click the Network Applet (4) in the right of your desktop you will see a list of access points. Select the network you Would like to connect to.

**Address:**

63 Emerald Street, #462
Keene, NH 03431

**Edition**

1st Edition

**Copyright Notice**

**Notice of Liability**

**Trademarks**

# Contents

# Offer of Source for GNU GPL and LGPL Software

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For at least three years from the date of distribution of the applicable product or software, we will give to anyone who contacts us at the contact information provided below, for a charge of no more than our cost of physically distributing, the following items:

A copy of the complete corresponding machine-readable source code for programs listed below that are distributed under the GNU GPL.

A copy of the corresponding machine-readable source code for the libraries distributed under the GNU LGPL, as well as the executable object code of Thinkpenguin, Inc, work that the library links with.

The software included or distributed for the product, including any software that may be downloaded electronically via the internet or otherwise (the Software) is licensed, not sold. The produce customer may modify any of the Libraries licensed under the GNU LGPG, and then re-link to produce a modified executable containing the modified Library.

Contact information for requesting source code:

Source Code Manager
ThinkPenguin, Inc
63 Emerald Street, #462
Keene, NH 03431
United States

Tel: 1-888-39-THINK (84465)
E-mail: sales@thinkpenguin.com

# Quick PC Setup

For power connect 1 to 2, 3 to 4, and 5 to 6 as shown in the diagrams below.

USB 2.0 Type-A
DisplayPort
USB 2.0 Type-A
2.5 Gbps LAN
Line Out
Line In
Power Connector

**2**

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE
USB 3.2 Gen1 (5Gbps) Type-A
Wi-Fi Antenna connectors
Mic In

6

5

4

1

3
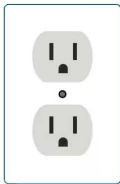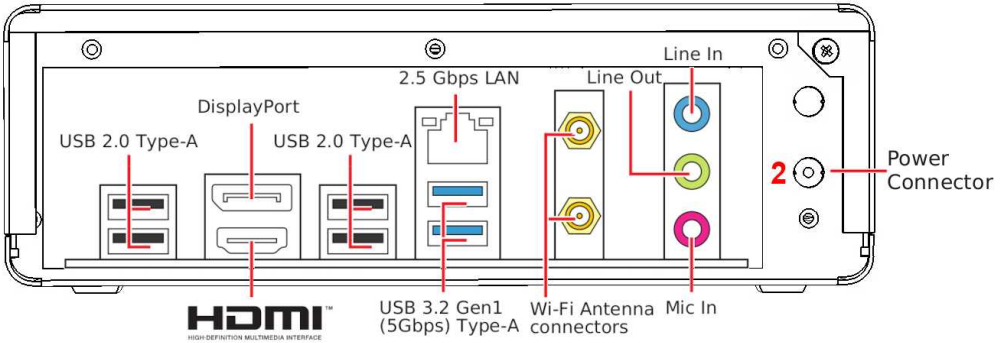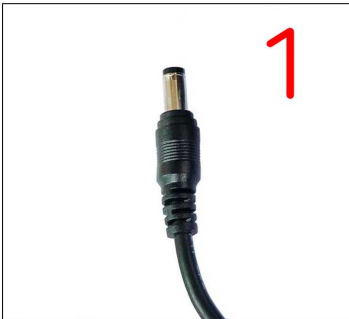
# Quick PC Setup

If you purchased a wifi card with the computer screw on the antennas as shown to the right.
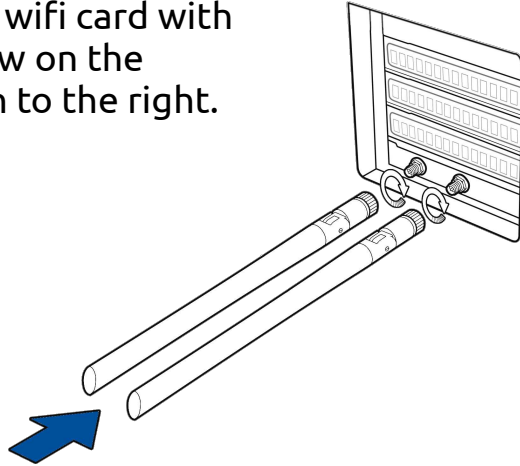
Unpack and identify any monitor, keyboard, and mouse. Then connect the components as shown below to their respective ports:

3
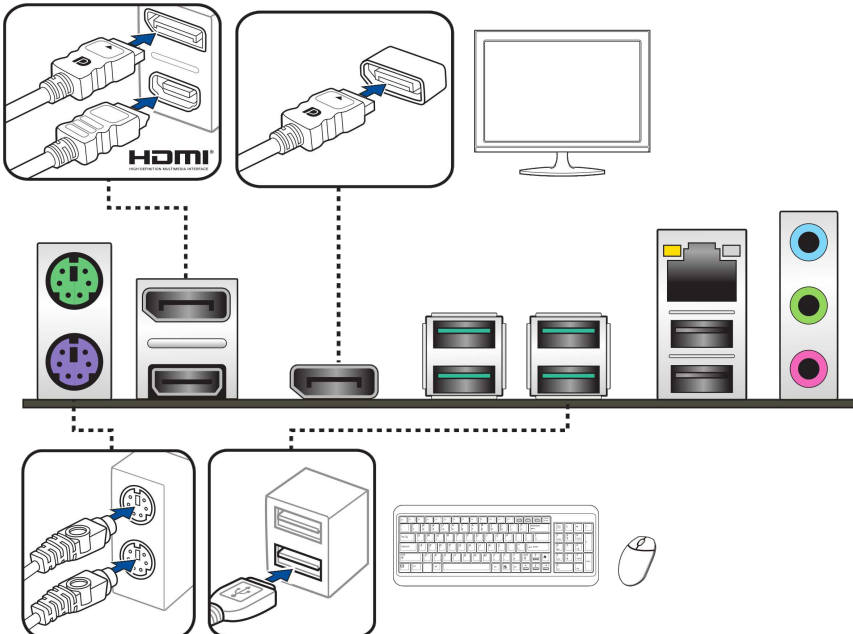
# Quick PC Setup

To turn the system on locate the power button on the front of the system and press.
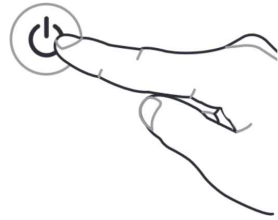
To turn the system off properly utilize the distribution's shutdown option. This can generally be found through the menu within the user interface.
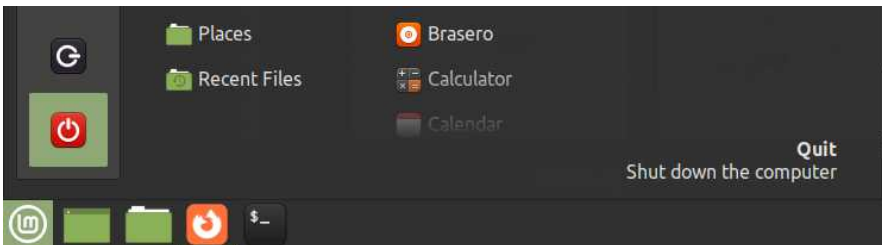


If the system is locked up or shutting down properly is not possible press and hold the front power button for a few seconds until the blue led light goes off.

# Port Identification

| Port | Color | Type | USB Specification |
|---|---|---|---|
| | Black | USB-A | USB Hi-Speed |
| | Blue | USB-A | USB 3.0 SuperSpeed |
| | Teal | USB-A | USB 3.1 Gen1 |
| | Red | USB-A | USB 3.1 Gen 2 USB 3.2 |
| | | USB-C | |
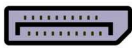
hdmi    displayport    dvi-i    dvi-d    vga
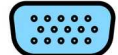
ps/2    audio    ethernet    usb type C    usb type A

# Burning Blu-rays & DVDs

1. Insert a write once or re-writable optical disc compatible with your drive. Click the button on the front of the drive to open and close the tray.

If you purchased a
DVD-RW Writer you
can burn CD-R, CD-RW,
DVD-R, DVD-RW discs.
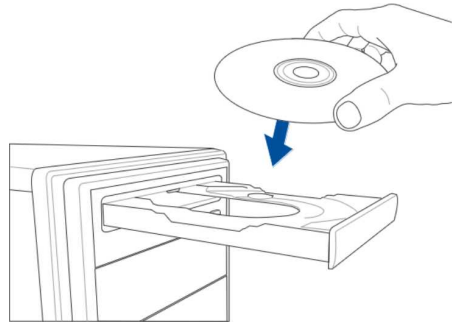
If you purchased a
Blu-ray Writer you
can also burn BD-R
and BD-RE discs.

2. Open the software manager, search for and install k3b. Launch it when the installation finishes.

3. Click the New Data Project button.

4. Drag the files you want to burn to the project area, click the Burn button, twice, to start writing your data to the disc.

When you see the Writing successfully completed message your disc is done.

# CPU Installation
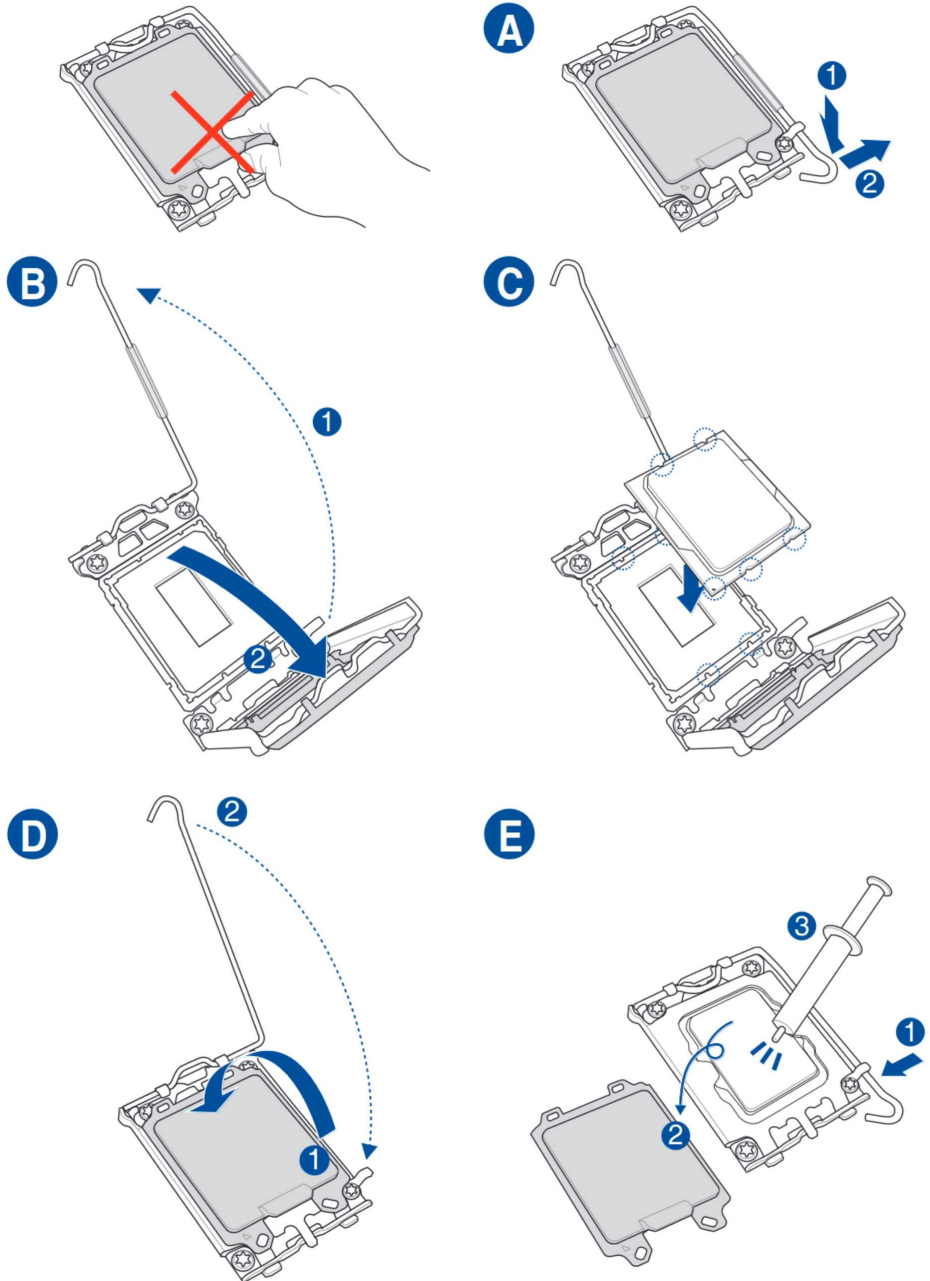
# Heatsink/Fan Installation
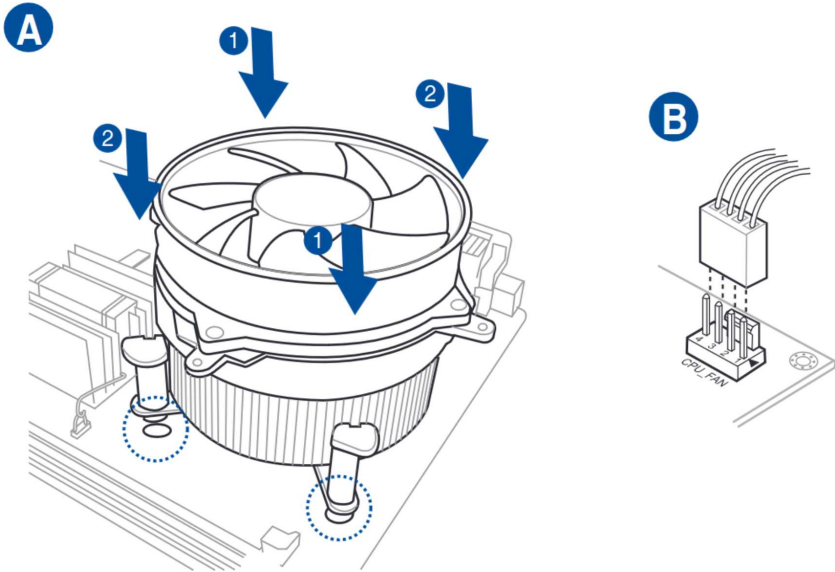


# RAM/Memory Installation
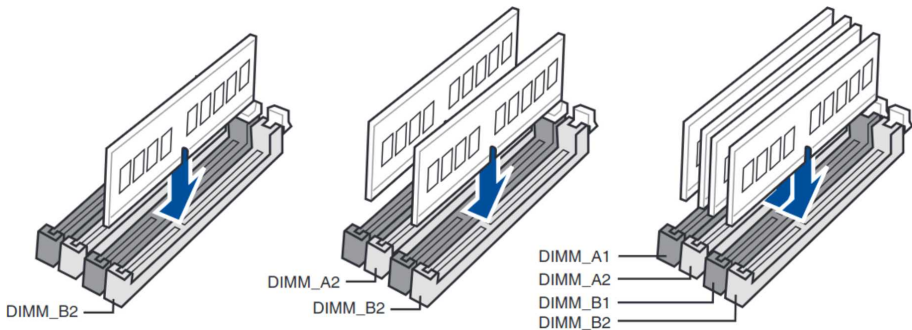
# M.2 SSD Card Installation
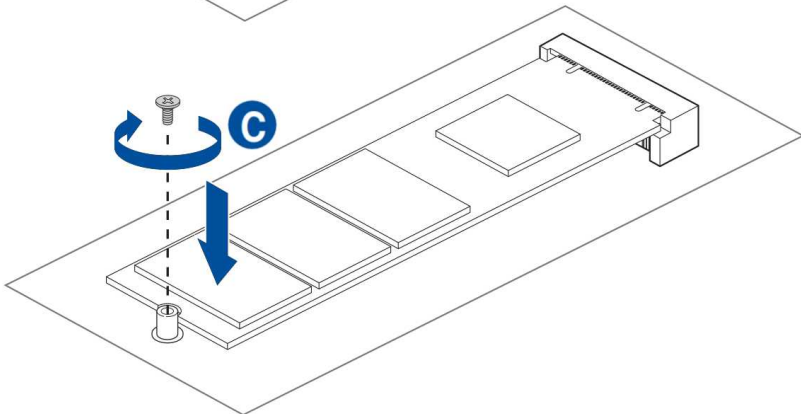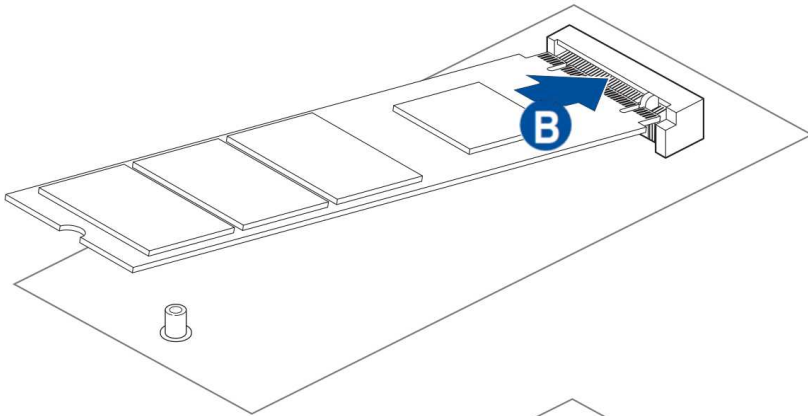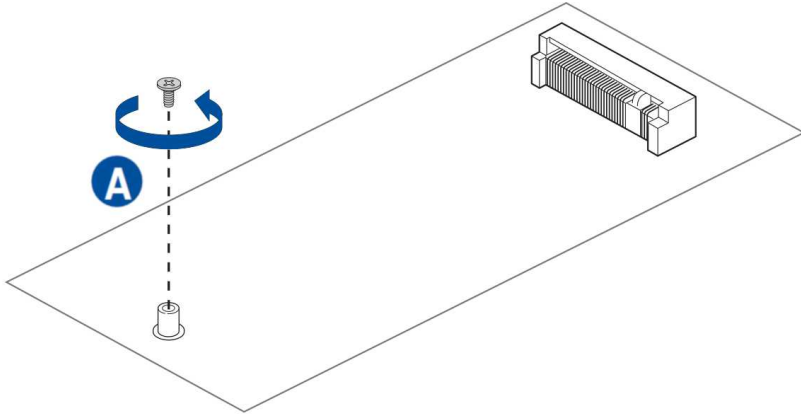
# Using Bluetooth

To connect to a Bluetooth device, you must first pair the device.

1. Plug in your USB Bluetooth adapter.
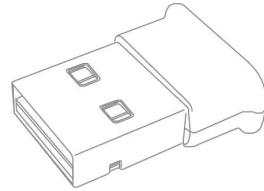
2. Turn on the device you would like to pair with and if necessary put it into pair mode. See the device's instruction for how to do this.

3. To pair a device open the Bluetooth Manager on your PC and click the search button. Select the device you want to pair with.
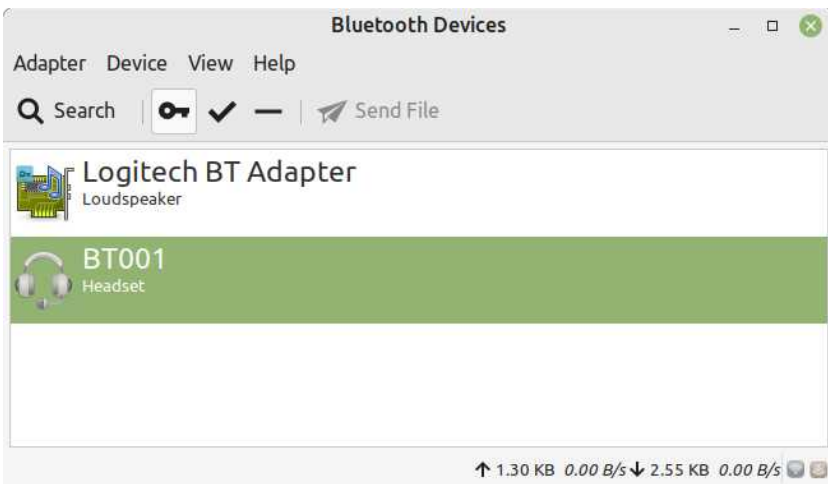


To connect click the pair Icon as shown on the right.

# Distributions of GNU/Linux

There are thousands of flavors of GNU/Linux to choose from, but most users select from a list of the more established distributions. We'd be amiss if we didn't at least mention the major core distributions that you'll likely come across while using GNU/Linux too. The distributions below make up the base of most other distributions, particularly those geared at desktop users.

Most distributions geared toward desktop users are derived from one of these three upstream distributions.

## Debian  •  Fedora  •  Ubuntu

With some amount of intuition it's often possible to safely follow documentation from an upstream distribution. Most third party software for instance that was built for Ubuntu will also be compatible with downstream distributions derived from Ubuntu. Two good examples of this are Linux Mint and Trisquel. Both of these distributions are forks of Ubuntu with some mostly superficial user interface changes.

# Creating Installation Media

What you'll learn

In this section, we will guide you through the steps required to install Desktop GNU/Linux on your laptop or PC.

What you'll need

- A laptop or PC with at least 25GB of storage space
- A blank flash drive with a capacity of at least 8GB

Whilst GNU/Linux works on a wide range of devices, it is recommended that you install it on a computer designed for free software. Systems and devices that are designed to work with free software operating systems don't depend on proprietary drivers or other software that won't and can't be properly supported. While it may seem as though GNU/Linux supports your proprietary software dependent hardware problems can arise down the road due to the inability of free software developers maintaining GNU/Linux to fix bugs and update drivers.

You may be wondering where you can acquire freedom respecting hardware. Well, there is good news. The Free Software Foundation curates a list of retailers and devices that have passed a thorough certification program.

The "Respects Your Freedom" [RYF] certification program encourages the creation and sale of hardware that respects your freedom and your privacy, and will ensure that you have full control over your system, peripherals, and accessories. With a free software friendly PC you can rest assured that your not being spied on, tracked, or losing control. Sources for RYF certified hardware include:

- fsf.org/ryf
- ThinkPenguin.com

# Creating Installation Media

1. Download a GNU/Linux Image (ISO or img) and make a note where you are saving it.

2. To write the image to a USB flash drive open GNOME's Disks utility. You can typically find this under the accessories section of the main menu.

3. Plug in a blank USB stick on which to write the image.

4. Select the USB stick (1), unmount any mounted partitions (2), click drive options (3), click Restore Disk Image (4), click the folder icon and locate the image (6, 7, & 8), click Start Restoring (9), click Restore when prompted, and finally at 100% click the eject button.
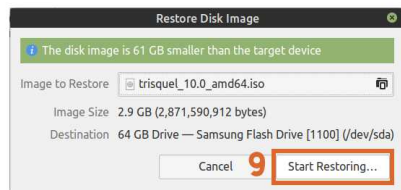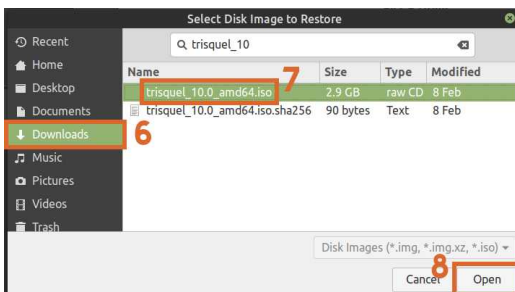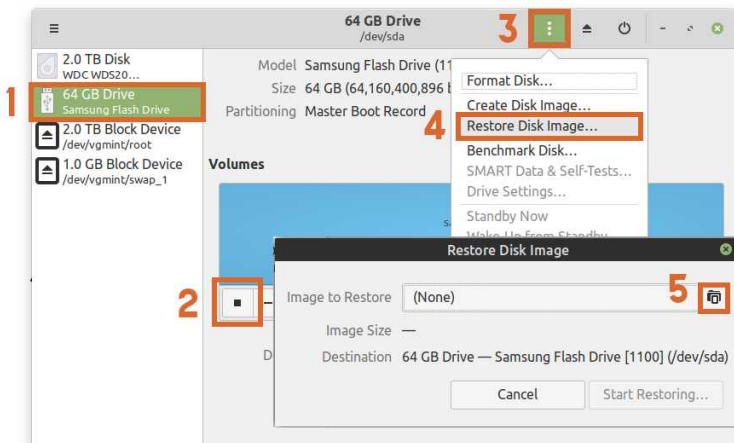
# Installing GNU/Linux

1. To install an operating system you will need to purchase or otherwise create installation media. If you need to purchase installation media one source to acquire it is https://www.thinkpenguin.com

Once you've got your installation media connect the USB flash drive to a USB port, or if you have a DVD place it in your DVD drive and close the tray.
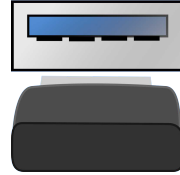
2. Power on the system and tap the boot menu key to bring up the boot menu. See your computers manual for documentation on the correct key for this. Every system is slightly different. Typically it's one of the F1-F12 keys, but not always.

3. Once the boot menu comes up you'll need to select the USB mass storage device or DVD if you're installing from an optical disc.

4. If you have selected the correct boot device you'll be presented with a new menu similar to what is shown below and a list of options. Select the installation option to continue.
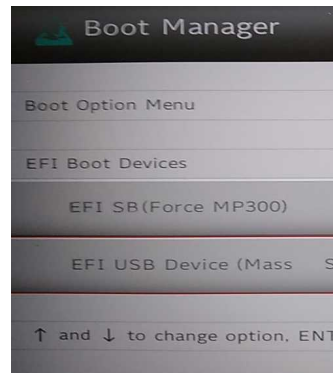
Once the system has booted the installation wizard will ask you to answer questions about the setup.

# Installing GNU/Linux

1. Now that the system has booted you'll need to answer a few questions. The installer will ask about which language you'd like to use, whether to install updates, and more.
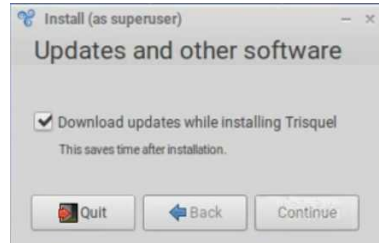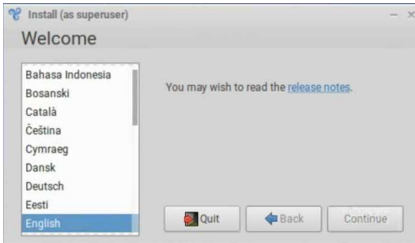


2. The installer will eventually ask about the type of installation. It's generally recommended to backup your data first, even if you are just upgrading  as a safety precaution. However, it's generally best to backup and then select the 'erase disk and install' option. When upgrading an operating system traces from the prior installation are left on the disk which can in some instances cause problems that otherwise wouldn't be encountered.

3. Once you're confident in how you want your system partitioned (if not erasing everything) click to confirm that you are ready to commit to the install.
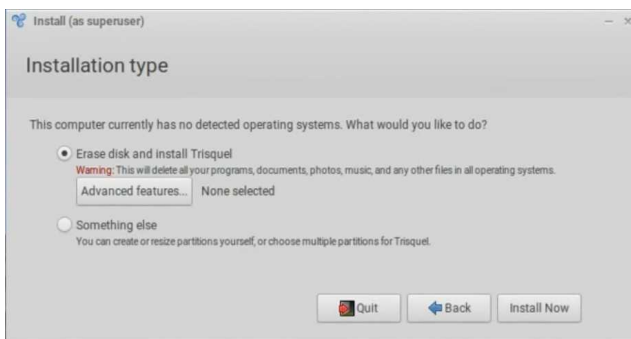
# Installing GNU/Linux

4. The installer will prompt you to answer a few more questions. It'll also ask about the region and time zone you are in.



5. It'll ask you for a name, computer name, username, and password.
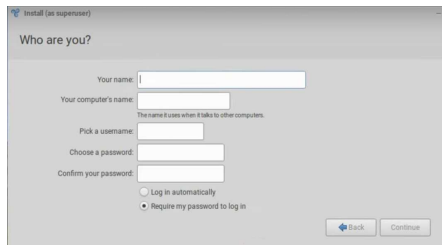
6.Finally it'll finish and you can restart.
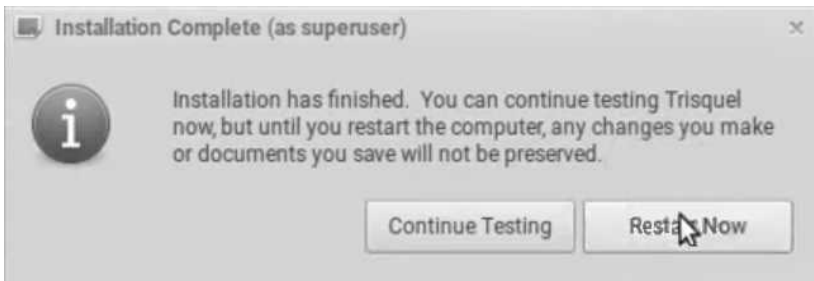
# Connecting to the Internet

The most common method of connecting a laptop computer to the internet (and often desktops as well) is via wifi / wireless. To connect a computer to a wireless network a user must select an access point from the network applet. This is done from the lower or upper right corner of the desktop. In most instances once a computer is connected to an access point it'll be issued an IP address automatically and the user will then be able to access the internet.

## Identifying the Network Applet

In order to connect to a wireless access point / router you will need to identify the network applet icon.
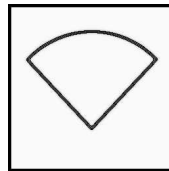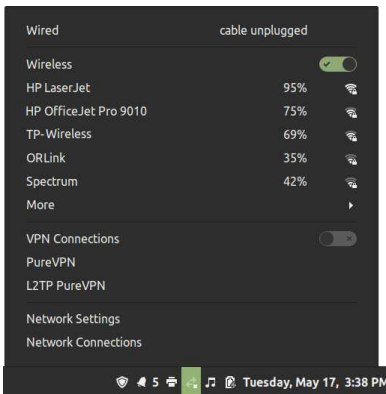


## Identifying Modem / Router Password

A home wireless router or modem will generally have a password set by default to restrict unauthorized access. Often an ISP supplied modem will have the default password utilized for the wireless access point printed on the bottom of the modem. If not you may need to contact your internet service provider-or peruse a router's user manual or other documentation to identify or set a password.

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# Connecting to the Internet

The 2<sup>nd</sup> most common method of connecting a computer to the internet is via ethernet cable. Typically a user will connect an ethernet cable from an ethernet or LAN port on a laptop or desktop computer to a LAN port on a modem or other routing device (a router) with internet connectivity. In most instances once a computer is connected to the modem/router it'll be issued an IP address automatically and  a user will then be able to access the internet.

### Identifying PC Ethernet Port & Cable

In order to connect to your modem/router, you will need an ethernet cable (also called RJ-45, or CAT 5/6/7 cable ).
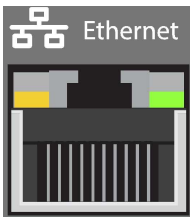
Ethernet Port          Ethernet Cable          Ethernet Connector

### Identifying Modem / Router

A router or modem will generally have ports labelled LAN and WAN. The WAN port is for the cable that connects the modem/router to the internet. The LAN ports are to connect the computers and other devices to the network/internet.
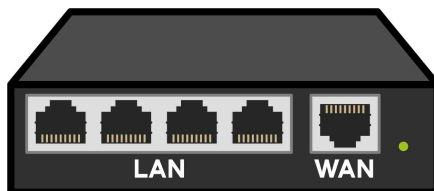
# Connecting to the Internet

A 3nd way to connect to the internet is via a 4/5G modem.

## Identify a USB Port on the System



## Identify the USB 4G/5G Modem



Antennas
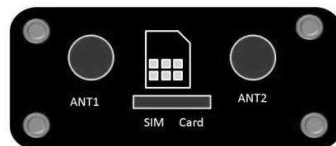
SIM Card Slot
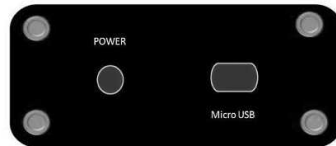
USB Cable

MicroUSB

To connect find out the APN for your cellular provider. Then insert an activated SIM card, screw on the antennas, and connect the USB cable from the modem to the PC.

In the lower or upper right of the desktop click on the network applet, select Network Connections, click the + button. Then select Mobile Broadband from the drop down list. Follow the wizard to connect.

Notes: Select 'I can't find my provider and I wish to set up the connection manually' when asked.

Most modems are poorly supported and not designed for GNU/Linux. See ThinkPenguin.com for a series of properly supported 4 & 5G modems designed for GNU/Linux.

# Setting the System Language

Language options depend on the distribution and version.

On Linux Mint 21 you can find the system language settings under:  Main Menu > Preferences > Languages



On Trisquel 10 you can find the system language settings under: Main Menu > System > Preferences > Personal > Language Support

# Display Settings

Changing the monitors resolution and adjusting other display settings like scaling for high resolution monitors depends on the distribution and release.

For Linux Mint 21 users go to:

Main Menu > Preferences > Display
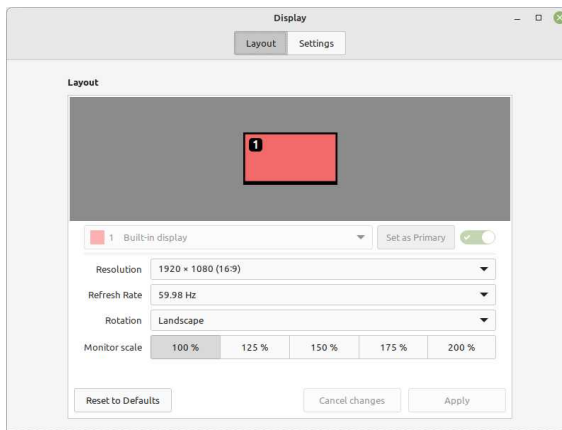
For Trisquel 10 users go to:

Main Menu > System > Preferences > Hardware > Displays
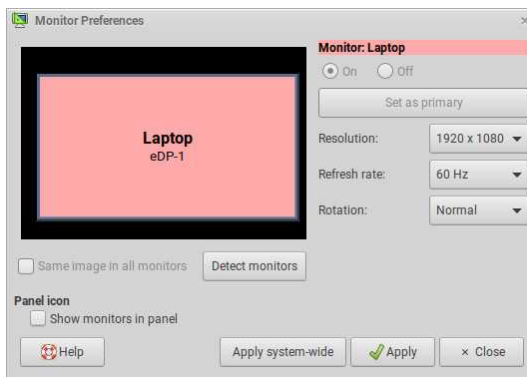
# Security Updates

It's generally a good practice to install security updates that become available for your system. Depending on your distribution and release you may be prompted to install security updates through an indicator icon in the lower right notification area of your desktop.

To run the software updater manually go to:

Main Menu > System > Administration > Software Updater

Or Main Menu > Administration > Update Manager

To install updates you may need to confirm that you want the update utility to check for updates first.

After which you can click the button install updates.

From time to time the update process may prompt you to answer a question or two- like confirming the changes you want to make. The default is generally the safe bet.
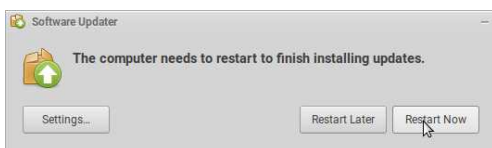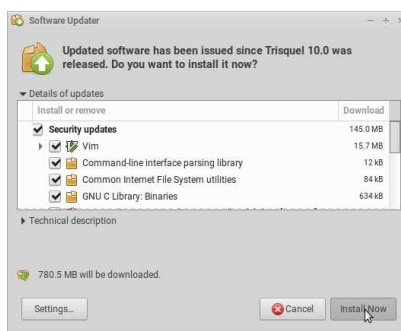
When the updates are finished you may be prompted to restart the system. This is generally a good idea as the system may be temporarily unstable.

# System Backups & Restores

Performing regular back ups of your data it always a good idea. One tool that can do full system backups is called timeshift and it's available on all major GNU/Linux distributions via the software manager.

Once Timeshift is installed you'll probably find it under the administration or other section of the main menu.

In order to perform a backup you'll also need to connect a large USB storage device to the system. The storage device should be formatted with ext4 and be large enough to store your entire system.

There are two ways to get a USB storage device formatted with ext4. One is to format a USB storage drive yourself.

The other is to get one pre-formatted: ThinkPenguin.com



Once Timeshift is open you'll need to select the type of snapshoting you would like to perform, we're going to use RSYNC in this example.

A snapshot is a type of backup where the entire disk is backed up in such a way that it can be restored. That is what we are going to do here. This is particularly useful in the event that a hard disk dies as you can then restore it to a new drive and be back up and running quickly.

The next thing we need to do is select the location where our backup will be stored, we recommend saving it to a reliable external USB storage device such as a USB NVME drive for best results.
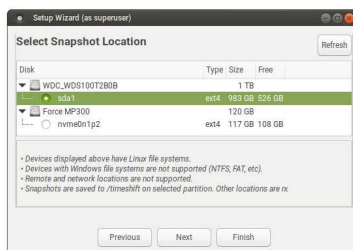
# System Backups & Restores

Select how often you would like to take a snapshot (you can also take a snapshot manually if you want to uncheck all boxes). That is what we are going to be doing here, but if you choose to take snapshots manually you can't forget to take them every once in a while or your backups will be out of date.
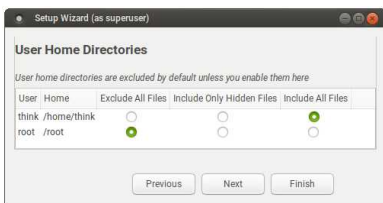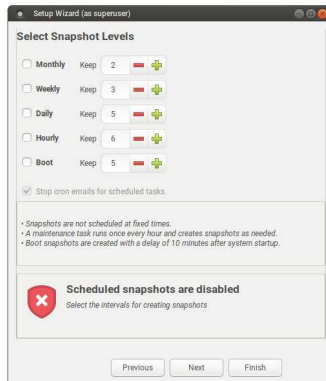
In order to be able to fully restore the system you'll want to make sure your users home directories are selected as well, as this is where your documents, settings, and other important files are kept.

Once the setup is complete you will need to click the create button to initiate your first snapshot [backup].
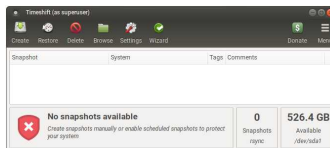
Once Timeshift has finished creating a snapshot you'll see a list of snapshots that have been taken. From this list you'll be able to restore to any previous snapshot should your hard disk fail or you otherwise need to recover.

# System Backups & Restores

Now that you've learned how to perform a full system back let's take a look at how to recover from a catastrophic failure. First, the best methods starts with creating installation media and booting up off it.

When booting off installation media you may need to install Timeshift before you can follow the recovery procedure here.

On most distributions Timeshift will either be on the installation media you are booted from, or if not it can be found and installed easily through the software manager.

However some flavors of GNU/Linux may require you to search for and open 'Software & Updates' first when running from the live installation media. After which you can enable the 'Community maintained free and open source software (universe)'.

The first thing you'll need to do is connect your USB storage drive to the system. Once you've done that install and open Timeshift.

Since we're not setting up automatic backups click the Finish button and proceed to the main screen.

What we need to do is set the location where our snapshots are stored. To do that go to Settings, then the Location tab, and select your USB storage drive containing the snapshots previously taken, then click OK.
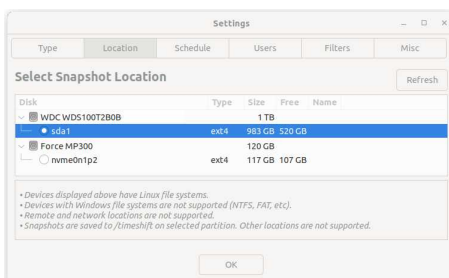
# System Backups & Restores

Once back at the main screen click the snapshot you would like to restore from, followed by the Restore button, then select the internal drive of the system where you would like to restore the backup to, then click the Next button.
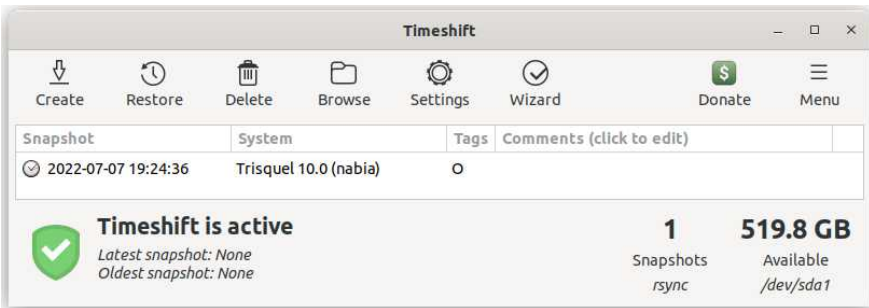


It'll ask you to Confirm your actions, click Next to continue

Click Next to confirm the warning and disclaimer as well.
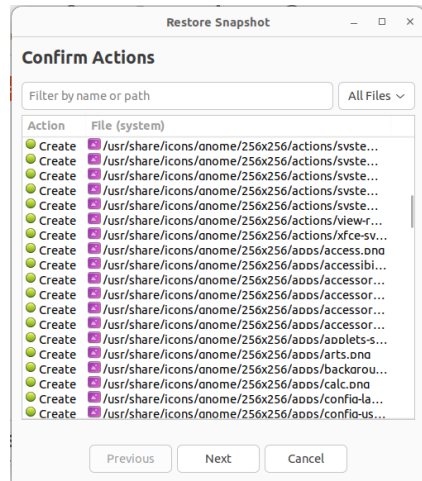




Upon seeing the Restore Completed Screen you can click the the Close button and reboot your system.

# Managing User Accounts

To add a new user and set administrator/user type go to:

Main Menu > System > Administration > Users and Groups

Or Main Menu > Administration > Users and Groups

1. Click the Add button (1).
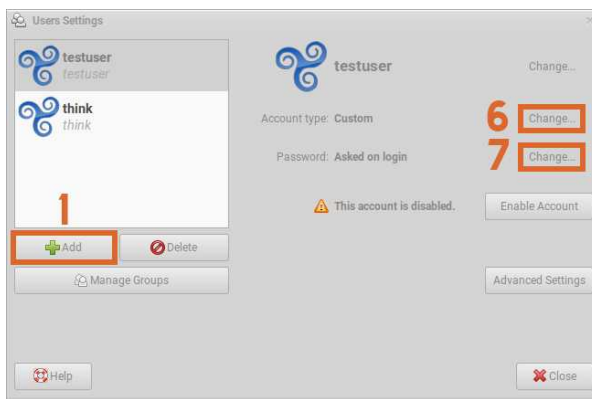


2. Select Administrator (2) under Account Type if shown, then enter a name (3) and username (4) in the respective boxes, followed by clicking the Add button (5).
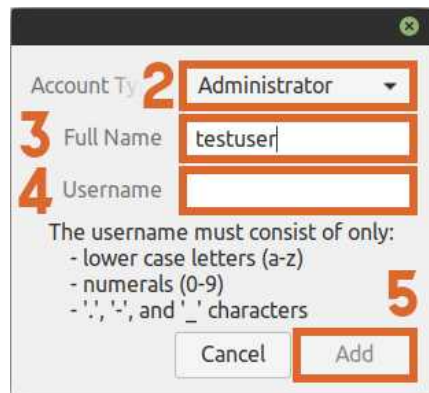
3. Enter a password for the new user when prompted.



3. To change the account type from a user to an administrator or vice versa (6) or to change a users password (7) select the user, and then go to account type or password to make the adjustment

# Formatting Removable Media

1. Open GNOME Disks:

Main Menu > Preferences > Disks

Main Menu > System > Preferences > Hardware > Disks

2. Insert your drive and select it from the list (1)

3. Click the Drive Options button > Format Disk… (2)
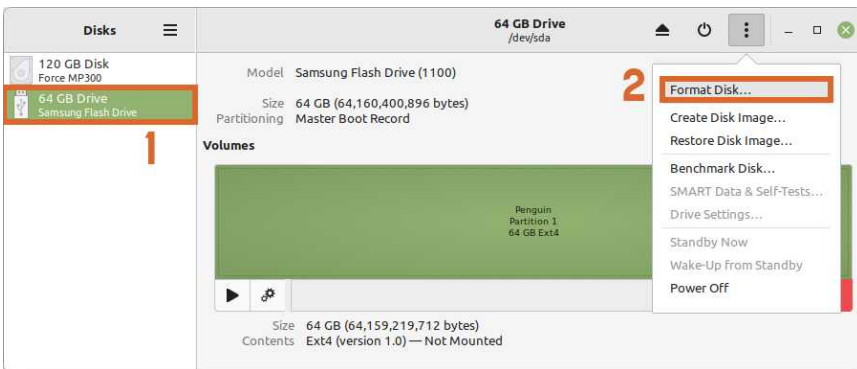


4. Click Format (3) to initiate the erasure of the drives data
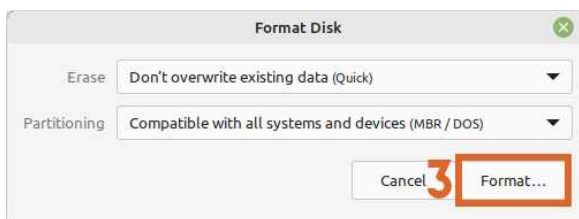


5. Click Format again to confirm you want to erase drive

6. Click + button to create partition in unallocated space
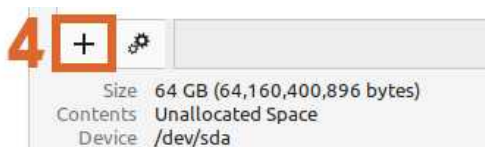
# Formatting Removable Media

7. Accept the default partition size and click Next
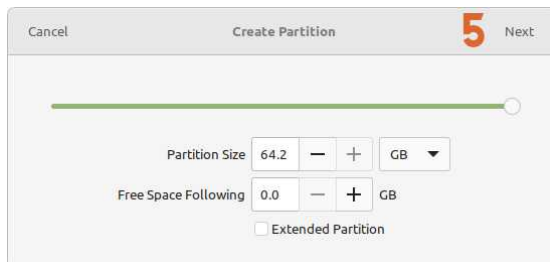


8. Enter a volume name (6) and choose which File System Format(7) is the best for your drive, then click Format/Create (8)

Ext4: This is a native GNU/Linux filesystem with security permissions although on more recent GNU/Linux releases the security bit is usually disabled for removable media so as to not interfere with transferring files between systems.



This is a good option for users backing up data, but not necessarily good for users transferring data between different types of devices and operating systems. This also has some advanced user options like whole disk encryption.

FAT: This offers the best compatibility between new and old systems and devices although comes with some limitations like files being limited to 4GB. If you select the Other option on more recent distributions there is a new file system called exFAT which can support files up to 16EiB (Exbibyte). Good compatibility with newer tech.

# Installing Software

Installing software on GNU/Linux is a generally pretty straight forward task thanks to modern package management. Most distributions are based around packages and a package management system.

You might be wondering what a package management system is exactly. Well, it is a collection of software tools that automates the process of installing, upgrading, configuring, and removing software in a consistent manner. In practical terms it's how you get the software you want installed on the computer.

In the modern world of package management there is something called a repository. This is just a collection of software that resides on a server from which you can install software from. You then download programs through what is called a package manager. The exact name of your package manager is dependent on your operating system and distribution, but here are a few you may have heard of already: 'App Store', 'Play Store', 'Software Center', and 'Software Manager'. All are effectively the same thing. Just another name for a particular operating systems package manager.

Most distributions have a single central software repository from where almost anything and everything resides. You can usually open your Software Manager / Package Manager and search for and install anything you'd like to download and use. In rare instances you may need to add an additional repository (ppa). Usually where this is required there are additional directions to follow.

In rarer circumstances still some programs may only be available in the form of an individual package. Installing these is usually just a matter of download a .deb file and clicking install.

# Installing Software

The first thing you need to do is identify the packager manager in your distribution. Most users will see an icon in the main menu similar to one of these two icons.

The first is the Synaptic Package Manager:

Main Menu > Administration > Synaptic Package Manager

The 2nd is the Software Manager:

Or Administration > Software Manager

The three core elements of a package manager are shown below. Every package manager has a search button, and/or a box, and a button to install a selected package.

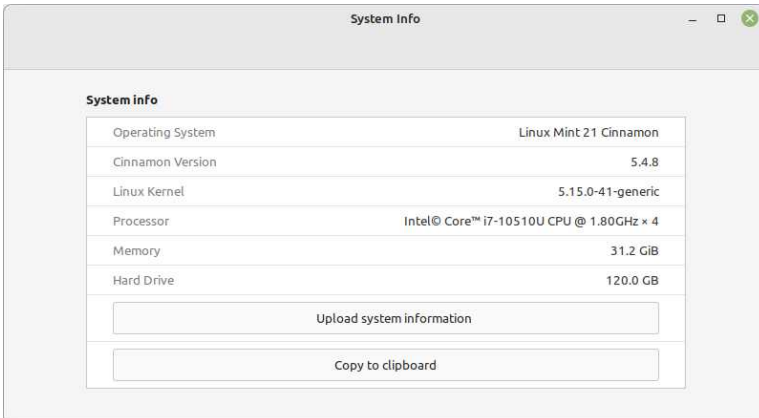In the below example we have the Synaptic Package Manager with a search button (1), a search box (2), and a button to install the selected package.
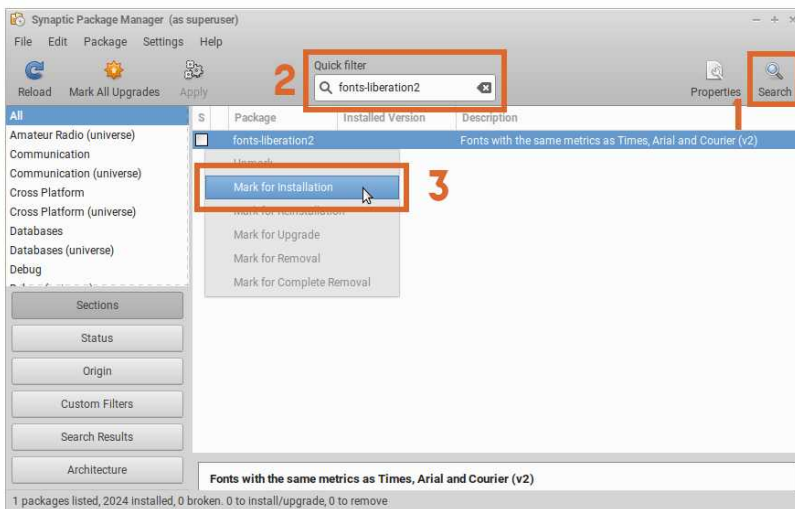
# Distribution & System Info

In Linux Mint you can find out the distribution, version, and basic hardware info by going to: Main Menu > Preferences > System Info



In Trisquel you can find out this information by going to: Main Menu > Other > MATE System Monitor
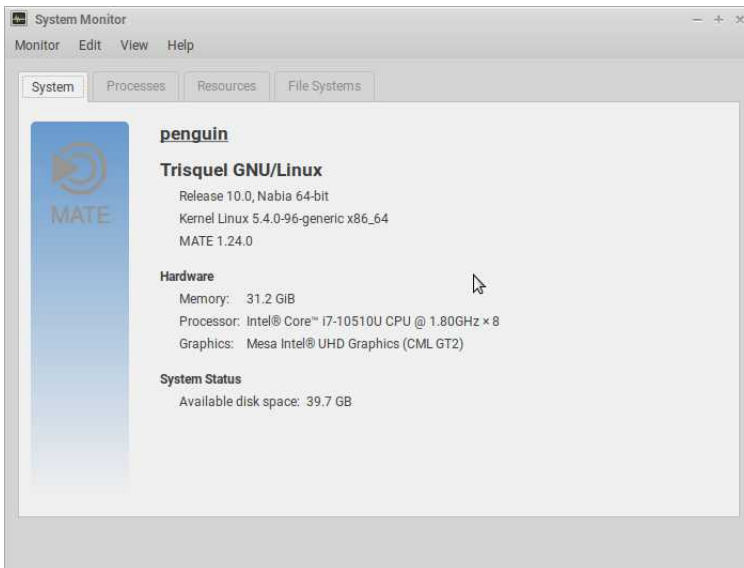
# Force Quitting Apps

In Linux Mint you can kill a process or application through the System Monitor app's Processes tab. Just select the process you want to kill, and click the End Process button:

Main Menu > Administration > System Monitor
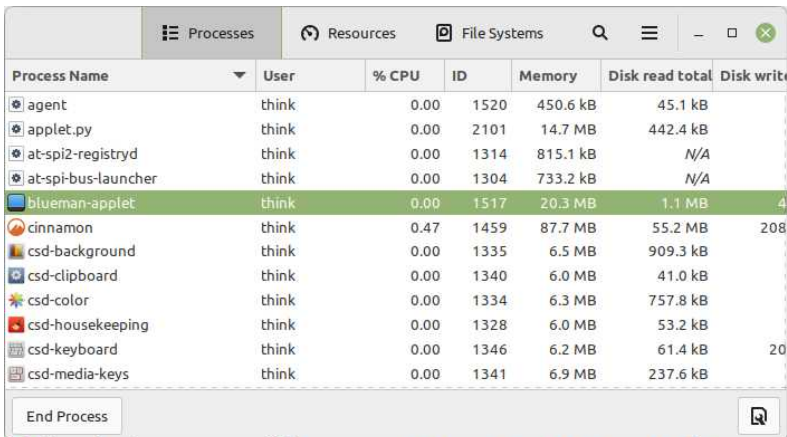


In Trisquel you can do the same through the MATE System Monitor app:  Main Menu > Other > MATE System Monitor

# File Manager Overview

With different distributions you will find a slightly different file manager. In this overview we're taking a look at the Nemo file manager that typically ships with the Cinnamon desktop environment. Other distributions include the popular Nautilus file manager.
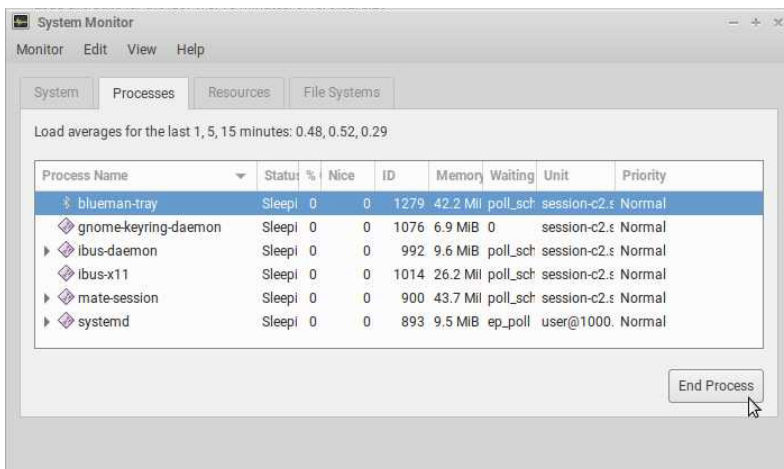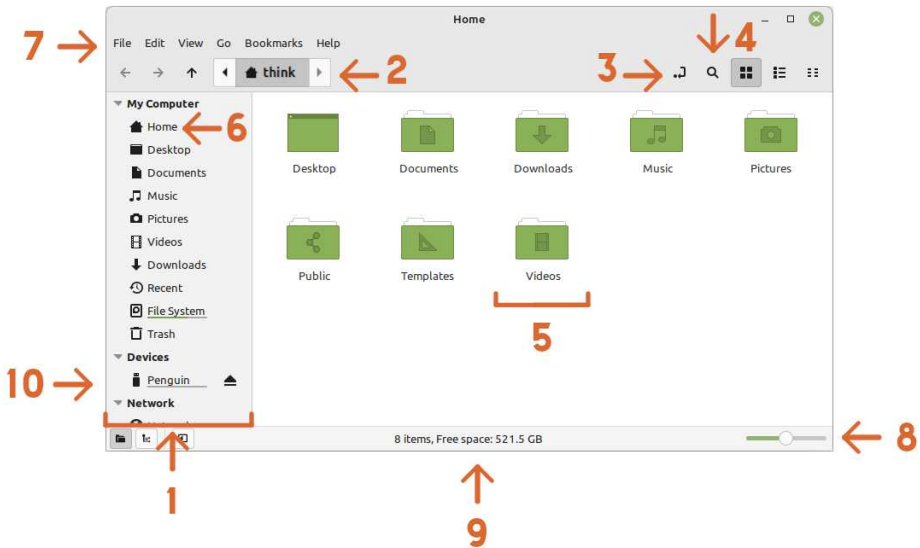
1. Sidebar: Contains shortcuts to folders & drives
2. Location Entry: Here you will find your current location
3. Toggle Local Entry: Breadcrumb View or Location Entry
4. Search: Search documents and folders
5. Folder: Double clicking a folder will open that folder
6. Home is where your files, folders and documents go
7. File menu: Rename/copy/delete & other options
8. Zoom: Change the size of the files and folders
9. Status bar: Displays the number of items & free space
10. Access hard disks and other external drives

# Date & Time Settings

To adjust the time and date and/or otherwise select a different format for your system clock you will need to open the System Settings or Control Center.

For Trisquel 10 open the Time And Date Manager:

Main Menu > System > Control Center

For Linux Mint 21 open Date & Time:

Main Menu > Preferences > System Settings

You can set the region and have the system automatically synchronize the clocks using the Network Time Protocol (NTP). Note: You may need to click Unlock first in Trisquel.



If you prefer to show a date and use a 12-hour hour clock:

# Web Browser  Overview

Firefox, or Abrowser, is a web browser that ships with most distributions of GNU/Linux. Below are some of the core components of the browser and a list of it's core functionality:

1. Address Bar(1): Enter a domain name or search term

2. Tabs(2): You can open multiple sites through tabs

3. Application Menu(3): Where the modern file menu hides

4. Find in page(4): This lets you search the text on a page

5. Bookmark (5): Bookmark a page for easy return later
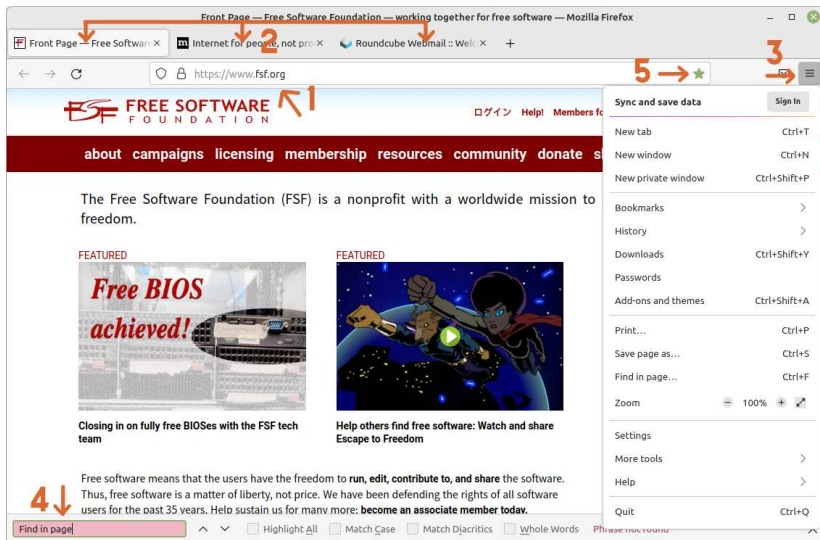


To find a particular word or term on a page (4) you've got open go the Application Menu > Find in page...
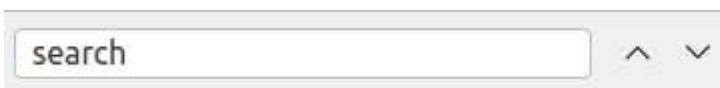
# LibreOffice: Saving Docs

LibreOffice is compatible with other office suites such as Microsoft Office and Wordperfect. Below is how to save in other formats besides the standard ODF file formats.

1. Go to File > Save As...
2. Enter a filename into the Name: box (1)
3. Select a file type from the drop down box (2, 3)
4. Click the Save button (4)
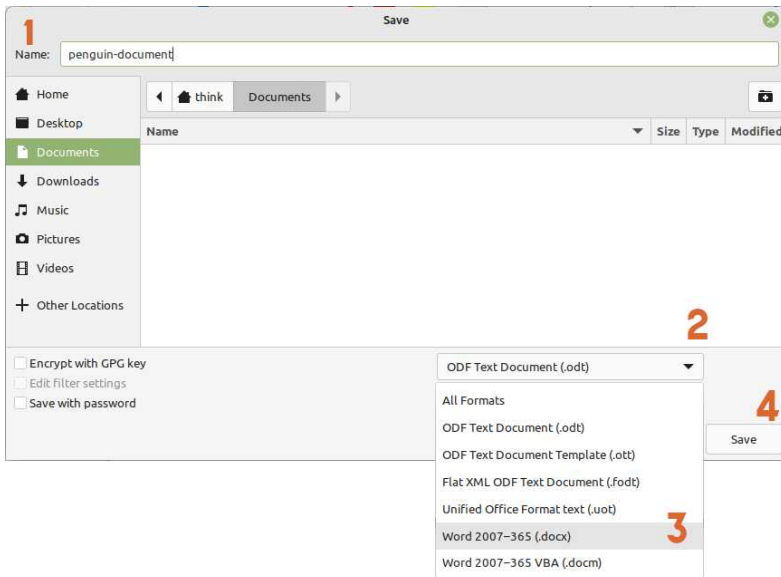


5. If saving in a non-LibreOffice file format you may be prompted to confirm that you want to save the file as a non-ODF document. To utilize the selected format accept the selected format (5).
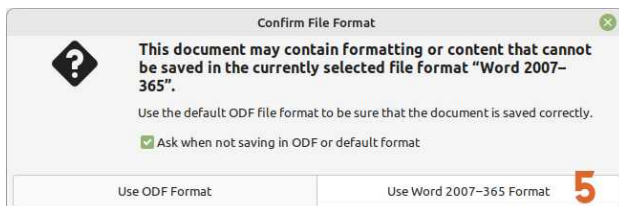
# LibreOffice: Spellchecker

To set LibreOffice's language for spellchecking:

1. Open LibreOffice:

Main Menu > Office > LibreOffice Writer

2. Set the language:

Tools > Options... > Language Settings > Languages

3. To set the the language of the spellchecker look for the section that says Default Language for Documents and under Western select the language that you'd like the spellchecker to default to:
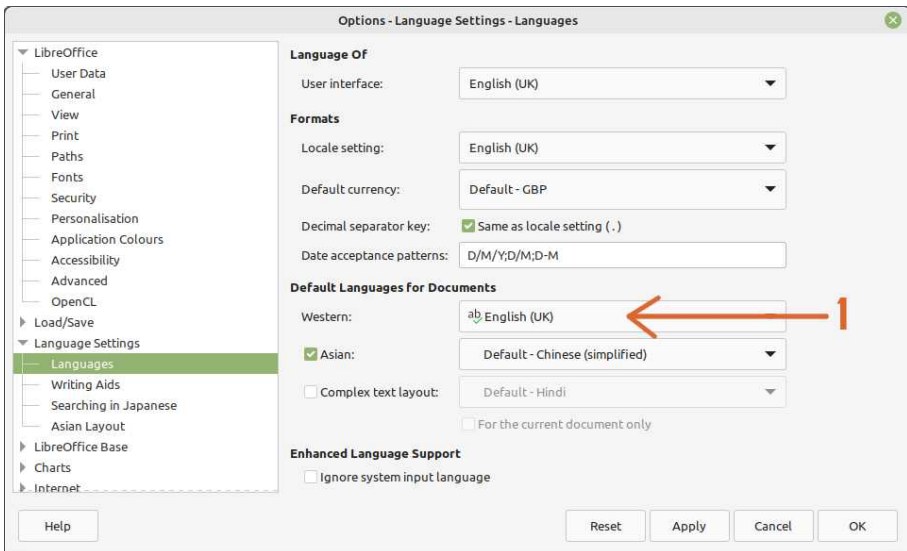


Note: You can also select the default date pattern, currency and other similar region/language options here as well under where it says Language Of and Formats.

# Installing Additional Fonts

### Installing More Common Fonts

To install new fonts open up your distribution's Software Manager, then search for and install the font package of your preference. An example of one font package available in most distributions is Google's Croscore.

Main Menu > Administration > Synaptic Package Manager

Or Administration > Software Manager

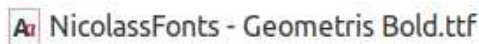Once installed you may need to reboot the system for the fonts to show up in your favorite applications.

### Installing Fonts From The Web

1) Download the font you would like to install

2) Open the zip file and double click on the font

Geometris Bold.zip

Aa NicolassFonts - Geometris Bold.ttf

3) Click the Install button to install the font

Geometris Bold
Bold
Info    Install

Geometris Bold

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789.:,;(*!?')

The quick brown jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy d

# Playing DVD Video Discs

Most systems today do not include support for playback of commercial DVDs. Fortunately installing the software to enable playback is relatively easy. Some users on distribution such as Trisquel will need to manually install the software needed for DVD playback.

The method that works for most distributions:

1. Open the Synaptic Package Manager:

Main Menu > Administration > Synaptic Package Manager

2. Search for and click on the package libdvd-pkg, select Mark for Installation, then click the Apply button to start installation, and then the Apply button again to confirm.
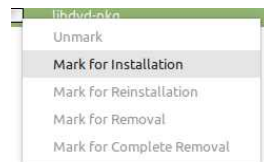
3. You will see a message about the files for playback being downloaded, and then asked to enable automatic upgrades, select Next to continue for each respectively.

4. The system will ask you what to do with the DVD when inserted. Select a video playback app, such as Celluloid from the list and click OK.
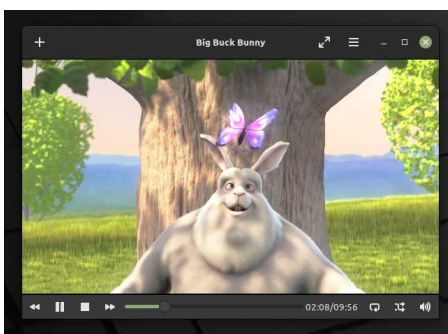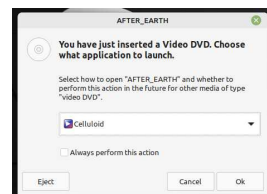
Big Buck Bunny
(c) copyright 2008,
Blender Foundation
www.bigbuckbunny.org

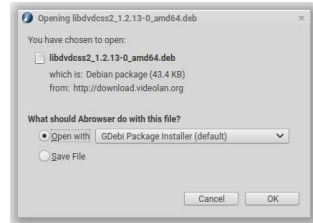* DVD playback software not to be installed where legally prohibited

# Playing DVD Video Discs

Unlike most other distributions Trisquel requires one to manually download and install the libdvdcss2 Debian package:

http://download.videolan.org/pub/debian/stable/

Ex: libdvdcss2_1.2.13-0_amd64.deb (for 64 bit systems, most users)

1. Make sure to save the libdvdcss2 .deb file to disk.

2. Once downloaded open the Downloads folder by going to Main Menu > Places > Downloads and right click the libdvdcss2 deb package.
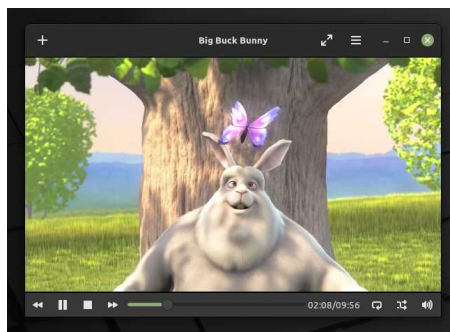
3. Select Open With GDebi Package Installer.

4. Click the install button to install.

5. When finished open VLC:

Main Menu > Sound & Video > VLC media player.

6. Click the Play button, select the Disc tab, and click the Play button to start playback.

* DVD playback software not to be installed where legally prohibited

# BIOS & Boot Menu Keys

If you are looking to boot from a USB flash drive or other medium there are particular keys that need to be tapped repeatedly upon turning the system on.

Boot Menu Key: F11

BIOS / UEFI Key:  DEL

# Wireless Remote

If you purchased a wireless remote with the system and need to install or replace the battery follow the directions below.

On the back of the remote unscrew the screw keeping the remote control together.

Pull the case apart and insert a CR2032 battery with the + sign on the battery facing up.

Reconnect the case and screw the case back together using the screw previously removed.

If all went well the remote should now light up red if you press the power button on the remote. If the computer is connected to power a blue light on the front of the system should come on as well.