



Linux is a fast, safe & easy to use FREE alternative to Windows or macOS, with excellent hardware support & a vast catalogue of available software. Unlike how Windows & macOS look, where there's very little customization (generally just colour themes), in Linux, the entire desktop presentation is changeable & customizable & there are many to choose from. Depending on your hardware specification (or personal choice!), we recommend the following 'desktops' & 'distributions' of Linux:

desktop	description	resources	distro	desktop	description (all are easy to use!)	upgrades
MATE	traditional	low-mid	Manjaro	M/X/C/L	cutting edge, easy to maintain, compatible, always up-to-date & lots of software	rolling
Cinnamon	traditional	mid-high	Mint	M/X/C	based on Ubuntu LTS, good for beginners as very 'Windows-like'	yearly
XFCE	minimalist	low	PCLinux	M/X/L	compatible & always up-to-date but based on Red Hat, rather than Ubuntu	rolling
LXDE	minimalist	very low	Ubuntu	M/X/L	most well-known version of Linux with vast amount of support, but uses more resources	yearly
			Lite	X	based on Ubuntu LTS, good for beginners as very 'Windows-like' & very low on resources	yearly

**We always use the same username & passwords for Linux: username=owner, password=id (or password) &, if applicable, root password=root.** If you change password, the system will insist on a 'secure' password & it'll have to be longer with a mix of upper/lower case letters &/or numbers/symbols!

If not already present, we install the following programs (if compatible with the computer hardware & version of Linux installed):

- GFW firewall, to prevent web based attacks
- Opera web browser with built-in pop-up & ad-blocker, VPN to bypass region blocking & compresses data to/from internet
- Chromium web browser that supports services like Netflix
- Firefox basic web browser, but lots of available plug-ins
- Adobe Flash required by some websites
- Skype internet text/voice/video chat
- TeamViewer allows password protected remote support
- Thunderbird safe email client with built-in spell checker, anti-spam, anti-phishing & customizable interface
- Aisleriot large selection of patience/solitaire card games
- Astro Menace 2D scrolling space shooter game
- Mahjongg classic game of matching pairs of tiles
- Mines clear hidden mines from a minefield
- Quadrapassel falling blocks game (like Tetris)
- LibreOffice easy to use Microsoft (Word/Excel/PowerPoint/Publisher) compatible office
- Deja-Dup file backup with scheduling
- TimeShift create or schedule complete system 'snapshot' to allow rollback
- Wine/PlayOnLinux allows Windows programs/games to be installed & run in Linux
- Brasero CD/DVD audio/video/data (re)writer
- Cheese webcam viewer & recorder with visual effects
- Midnight twin window file manager
- Commander (for system folder access, open Terminal & type: sudo mc)
- Clementine music player, manager, MP3 player synchronization & CD ripper
- VLC media player for audio or video files with many built-in codecs
- GIMP image editing, similar to Adobe Photoshop or Corel Painter
- Shotwell picture viewer, grouping pictures by year, month & date
- SANE/Xsane Scanner Access Now Easy - scanner access via graphical interface
- Cairo Dock attractive animated program launcher
- Psensor monitors motherboard, CPU & HDD temperatures & alerts if too high

Not included (unless pre-installed in particular version of Linux), but popular optional programs:

- BillardGL 3D billiards game
- Brutal Chess 3D chess game
- HedgeWars turn-based artillery game
- Scrabble3D 3D version of popular word game
- Steam world's biggest (over 4400) gaming platform
- Super Tux Kart 3D racing game with go-karts
- 3D first person stand-alone or online shooter games: Alien Arena, AssaultCube, Legends, Nexuiz, Red Eclipse, Smokin' Guns, Tremulous, True Combat, Urban Terror, Warsaw, Wolfenstein, World of Padman, Xonotic, Zero Ballistics
- 4K VideoDownloader download videos from YouTube, DailyMotion, Facebook, etc.
- DVDStyler make DVDs from pictures or videos - includes many templates
- Inkscape vector graphics editor, similar to Adobe Illustrator or Corel Draw
- OpenShot non-linear video editor - includes visual effects
- Scribus professional quality desktop publishing
- Spotify streaming music player with millions of available tracks
- Sweet Home 3D 3D home modelling & design
- XFE File Manager small, fast, easy to use multi-panel file manager
- XnConvert batch picture/image converter - size, resolution, quality, format
- xVideoServiceThief download videos from ~90 streaming websites

1. If using a router for internet connection & it was already setup & previously in use, then nothing more is required to reconnect to internet. If using network cable from router, just plug it into LAN port on computer & you're connected! If using wireless, click connection icon near clock & it will display available, in-range networks... select yours from list, enter your wireless password (either password entered when router was setup or whatever was assigned by internet provider - often either written on a sticker on router or supplied on a card) when prompted & you're connected. If stored password gets corrupted or you change router's WiFi password, you'll need to remove it from stored networks so it'll re-ask. Do NOT try to install ANY software from your internet provider - it's not required & it won't be compatible! If using 3G/4G USB modem, plug it in, click connection icon near clock & select mobile network, then follow prompts to specify internet provider & service type (contract/PayAsYouGo) & it'll automatically connect. If you have a MiFi or use tethering from your phone/tablet, connect as per wireless above. Until connection is (re)established, you CANNOT browse internet, check email, search /access /download /update ANYTHING from the internet! Linux supports storing login passwords, credentials, network keys, etc in a 'key ring' for which a password is required - for simplicity, you can (but don't have to) use the same as your user password.

2. For wireless security on your router, make sure you're using WPA2 encryption (check router's manual for how to access settings). WEP (slow) & WPS are both easily 'crackable' & WPA1 isn't encrypted at all! Additionally, always change the default router name & password as there's software available to display default passwords based on router name. If someone (nearby) can access your router & they use your internet YOU could be faced with a large usage bill if they take you over your limit. It's illegal (fines & prison) & you should report such activity to the police! Most modern routers would already be set to WPA2, but if yours isn't, although it isn't required you change settings, obviously, it's highly recommended!

3. Similar to Microsoft & Apple app stores, Linux uses a software 'repository' (add/remove programs or software/package manager on menu) - this lists all programs compatible with that version of Linux & you can just browse or search list to install or uninstall (NEVER delete programs, ALWAYS uninstall else you can 'break' Linux!) any program (click 'tick box' next to program & then click 'Apply'). As a general rule, do NOT put CD/DVD into computer to install (certainly not Windows based!) software. Mint, Ubuntu & PCLinux also support installing downloaded (.DEB (.RPM for PCLinux)) programs (see below for recommended websites) & Manjaro has the AUR (Arch User Repository, enabled via 'preferences' in package manager) which contains community maintained programs (e.g. Skype is by Microsoft, Chrome is by Google, etc) that are downloaded & compiled (takes longer than installing programs from main repository). Programs in the AUR may not be compatible with your hardware or Linux version (e.g. installing Epson printer driver for Canon printer!). Generally, look for 'Gnome', rather than 'KDE' versions of programs as all versions of Linux we install are Gnome based (KDE takes far more resources, so is only suitable for newer/high spec computers).

4. Currently, Microsoft do not offer a version of Microsoft Office for Linux (if they did, it wouldn't be free!), so we install LibreOffice (the new name for OpenOffice), which is FREE & compatible with Microsoft's Word (word processor), Excel (spreadsheet), PowerPoint (presentations), Publisher (desktop publishing) & also includes a database. For greater compatibility with other office suites, it's recommended to save files in Microsoft 1997-2003 format.

5. Currently, Apple, despite using (a heavily cut-down version of) Linux themselves (macOS/iOS), do not offer a version of iTunes for Linux, so for most iPhones, iPads, etc, use *Clementine* to copy/sync music. Whilst any files can just be copied to/from, some Apple devices (e.g. 7th gen iPod, iPhone 5, etc) are so basic they offer no option to update lists! For these, you'll have to use a computer with Windows & iTunes (iFunbox is better/quicker/easier) or just get a better phone, tablet, etc! There are similar limitations for GPS devices... although many use Linux on the device, they don't support Linux! However, with most, you can just copy the maps onto the memory card. It's also possible the Windows program (e.g. iTunes, TomTom, Garmin, etc) will run in Wine (see below), which is updated frequently to enhance compatibility. Web streaming services that use Microsoft's SilverLight (e.g. Netflix, BT Sport, etc), will need a browser plug-in to support it as, despite being a premium member of The Linux Foundation, Microsoft don't have a Linux version!

6. If you had requested a data backup, then your data files (i.e. documents, downloads, pictures, music & videos) will either be reintegrated, for single user backups, or stored in a folder called "My Backup", in the downloads folder. This folder will also contain any other files that can't just be 'copied back'.



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- To install Windows software, use PlayOnLinux & if it's in the supported program list, just select it to automatically download & install the program. For anything else, try installing the downloaded ".exe" program through Wine, but be mindful not everything will be compatible.
- For email, if you used a 'web based' service (e.g. Yahoo, Outlook (the new name for Hotmail), Gmail, etc) then it's not stored on your computer so you just go to their website via an internet browser (after (re)connecting to internet (see above)) & sign-in to access your email & contacts as before. If you used 'client based' email (e.g. Microsoft Outlook, Windows Mail, Thunderbird, Incredimail, etc) then you may be able to import your contacts & old emails into Mozilla Thunderbird email client (already installed). You'll need to re-enter your email account details (e.g. email address, password, inbound/outbound mail servers, etc) & then import the email & contacts from the backup folder. Most internet providers include help on their website on how to do this.
- Unlike Windows, Linux has substantial hardware support already built-in, so for the vast majority of devices (e.g. WiFi, Bluetooth, printer, scanner, webcam, etc), just plug it in & it'll be automatically & instantly recognized! Anything not supported, like Windows, will need device drivers installed (check AUR in Manjaro or manufacturer's website for other Linux). Also, like Windows, not everything is compatible!
- If hardware isn't working, check the obvious first: is it plugged in? Is it switched on? Are the lights on? Is it installed/setup? Is it enabled?
- Linux is MUCH safer than Windows, so although a firewall is highly recommended to stop attack attempts, anti-virus is optional (no Windows infection can infect Linux!). However, there are various free anti-virus programs available with Clam-AV & Comodo being quite popular.
- Unlike Windows' monthly updates, Linux updates are released as soon as they become available & you'll be alerted (often by an icon by clock) when any are detected. These should be downloaded & installed as soon as possible. Updates can fix security issues, add new features or improve existing ones, but, unlike Windows updates, Linux updates also include all installed programs! Periodically, update software/package lists/mirrors (generally via software/package manager) to get fastest/most up-to-date lists, before installing updates, as out-of-date mirrors may not have the latest programs causing updates to fail.

## **Don't leave it too long to install updates (check, ideally weekly, but at least monthly), else you can 'break' Linux (easily fixable in Manjaro)!**

- If there's an issue preventing updates (e.g. old program conflicting with new program), unlike Windows' plain error number & no details, Linux will report the exact reason & list the related programs, so you can easily uninstall the offending one! In addition, Manjaro & Mint Linux will alert you to new versions of the Linux kernel for easy upgrading. New kernels may contain security or bug fixes or have better or enhanced performance & hardware support. It's good practice to only update to newer Long-Term-Support (LTS) kernels (5 year's support) as others have less than 1 year's support before being discontinued. However, on newer computers, you might need the latest kernel to support the newer hardware. It's quick to try & you can easily select older kernel at boot time, if newer is incompatible.
- When completing a Linux installation, if compatible with that version, we install & run *TimeShift* to create a 'snapshot' of Linux & all installed software - this allows complete system restore (without affecting data files) in the event of corruption or not loading (just boot from 'Live Linux' disc, install TimeShift & restore stored backup). We schedule TimeShift to update the snapshot weekly which only takes few minutes, if not many changes!
- Google themselves say they are NOT a search engine(!) - they haven't been one for many years - they are a content provider, displaying mostly sponsored links. You'll often see the "did you mean..." message. However, virus writers pay Google for links to malicious websites, so check the link looks genuine before clicking it. Yahoo & Bing find substantially more applicable hits & are far safer.
- Most of the computers we see with virus, spyware or malware infections got infected via Facebook, Google or email! Due to their popularity, they are specifically targeted by virus writers & scammers. To reduce the chances of being a victim, if something doesn't look right, or it seems suspicious, then it most likely isn't safe, so don't click on it!
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- The world's greatest internet threat is the rise of ransomware infections - these encrypt all your data files & then demand £100's payment within a short time to decrypt them else they are permanently lost! They are mostly distributed by email & malicious websites (accessed by Google 'search' or malvertising (fake adverts)). **ALWAYS backup important files & make sure all installed software is kept up-to-date.**
- We get a lot of customers telling us they've had callers, often saying they're from Microsoft or BT, claiming to have detected infections or problems on their computer & asking to allow access - which they use to upload programs or infections to support their claims - it's a scam that often costs £100's! Just say you don't have a computer! If you've already been a victim of this scam, contact the police & report it to your bank - you've been robbed!
- Any important files (e.g. documents, pictures, music, videos, etc) should be 'backed up' each time they change - if you work on your computer weekly, then you backup weekly, if you work daily, then you backup daily! ALL hard disc drives fail - no exceptions - & infections/attacks can corrupt files! Make copies on external hard disc, USB flash drives or online storage, but ideally, not CD/DVD/Blu-Ray discs (short life span & unreliable).
- Dust gets into computers & clogs up fans & air vents causing components to overheat & if temperatures get too high, they'll burn out! This can often be a costly repair, sometimes more than computer is worth! Check regularly for dust build up & clean when necessary. Thermal paste (between chip & heatsink) should be replaced if dried out. If portable computers have air vents on base or contain mechanical (rather than solid state) hard disc drive, they are therefore "notebooks" NOT "laptops" & **MUST** be used on a flat & steady surface to limit overheating & drive damage (movement, while powered, causes heads to hit disc surface, damaging disc!). Since batteries are for portable use, after charging, remove when mains powered (switch off first!) else computer will actually be reducing battery capacity! Top up battery every few months to keep it 'alive'.



**Troubleshooting:** (there is substantial online support for all versions of Linux... just check their websites & forums)  
If updates, upgrade or installs fail, for whatever reason (e.g. power cut/disconnected internet), you might need to refresh or repair system files before trying again. In a Terminal/window (via start menu), check the following (remember, Linux is case sensitive for filenames & parameters, so, for example, "S" is not the same as "s"):

**Debian/Ubuntu based Linux (e.g. Mint, Ubuntu, Lite, Debian, Endless):**  
Mint: <https://linuxmint.com> help: <https://linuxmint.com/faq.php>  
Ubuntu: <https://ubuntu.com> help: <https://askubuntu.com>  
Lite <https://linuxliteos.com> help: <https://.linuxliteos.com/forums>

sudo apt-get autoclean remove partial packages  
sudo apt-get clean remove cached packages  
sudo apt-get autoremove removes dependencies after package removed  
sudo apt-get update refresh package list  
sudo apt-get upgrade upgrade packages & Linux  
sudo apt-get dist-upgrade upgrade packages, resolving conflicts  
sudo apt-get --fix-broken install resolve broken dependencies  
sudo dpkg --configure -a configure interrupted packages

df -h display available disc space  
sudo fsck check files on disc (like Windows CHKDSK)  
lshw or lsusb list all hardware or just USB devices

To enable blocked WiFi, from Terminal, type: rfkill list, then sudo rfkill unblock *n* (where *n*=adapter number) & after, restart to enable.  
To add additional software repositories, from Terminal, type:  
sudo apt-add-repository ppa:*developer/repository-name*  
(replacing *developer* & *repository-name* as applicable)  
To install downloaded .tar.gz software: right-click file, select extract here & make a note of folder name. From Terminal, type cd /home/*username*/folder/*package-name* (replacing *username*, *folder* & *package-name* as applicable) look for README file, open & follow instructions (often, just type: install.sh)  
To upgrade Mint: Update Manager, Refresh, install *mint-upgrade-info* & *mintupdate*, Edit, Upgrade (for details: <http://blog.linuxmint.com/?p=3306>)

**Red Hat/Mandriva based Linux (e.g. PCLinux, Red Hat, Fedora, CentOS):**  
PCLinux: <http://pclinuxos.com> help: <http://pclinuxoshelp.com>

sudo yum clean all remove cached packages  
sudo yum autoremove removes dependencies after package removed  
sudo yum update update packages  
sudo dnf upgrade --refresh ONLY Fedora 21 or newer, refresh packages  
sudo dnf install dnf-plugin-system-upgrade install system upgrade plugin  
sudo dnf system-upgrade download --refresh --releasever=*xx* --allow-erase download upgrade packages where *xx*=version to upgrade to  
note broken packages being removed so you can reinstall them later  
sudo dnf clean packages remove deprecated packages  
sudo dnf system-upgrade reboot upgrade

Alternatively, if using Synaptic Package Manager:  
Reload refresh package list  
Mark All Upgrades, Apply update  
search/select kernel, Apply upgrade (old kernels kept for compatibility)  
Automatic updates: Open Configure your Computer (PCLinux Control Centre), click System, Manage System Services, tick APT to start at boot, click Start, OK

**Arch based Linux (e.g. Manjaro, Arch, Antergos, BlueStar):**  
Manjaro: <https://manjaro.org> help: <https://wiki.manjaro.org>

sudo rm /var/lib/pacman/db.lck removes program update lock  
sudo pacman-mirrors -f refreshes software mirrors  
sudo rm -fr /etc/pacman.d/gnupg && sudo rm -fr /root/.gnupg/ removed old/broken keys

sudo pacman-key --init initialize keyring  
sudo pacman -S gnupg (re)install gpg keys  
sudo gpg --refresh-keys refresh & update gpg keys  
sudo pacman -Sy gnupg archlinux-keyring manjaro-keyring synchronize keys  
sudo pacman-key --populate archlinux manjaro load signature keys  
sudo pacman-key --refresh-keys refresh & update signature keys  
sudo pacman -Sc remove cached software from aborted update  
sudo pacman -Rsn \$(pacman -Qdtq) remove orphaned packages  
sudo pacman -Syuu synchronize repository & update system  
sudo pacman -Syuu --force as above, but ignore errors (NOT recommended!)

If not booting to desktop, boot Manjaro DVD/USB, run Terminal, type:  
manjaro-chroot -a, sudo pacman -Syuu, sudo reboot  
if asked to delete an existing settings file: sudo rm *path/name* & retry  
if conflicting package reported: sudo pacman -R *package-name* & retry  
Can also be corrupted/incompatible graphic drivers:  
mhwd -li to list which graphics driver is installed  
sudo mhwd -r pci *name-of-graphics-driver* -f to remove driver  
sudo mhwd -a pci free O300 -f to install open-source driver

If Cinnamon desktop icons not showing, run Terminal, type:  
sudo rm /home/*username*/.config/nemo/desktop-metadata (then logoff/on)

If update conflict error for "gcc" & "gcc-multilib", remove old & install new:  
sudo pacman -R gcc to remove old  
sudo pacman -Sy gcc-multilib gcc-libs-multilib lib32-gcc-libs to install new

To enable firewall at startup, run Terminal, type: sudo ufw enable && sudo systemctl enable ufw && sudo systemctl start ufw

To create desktop shortcuts: right click desktop, create launcher, enter name & command with optional parameter (e.g. Outlook, opera www.outlook.com)

To install different Desktop Environments: (logoff & select choice at login)  
sudo pacman -S cinnamon (uses ~350MB)  
sudo pacman -S mate && sudo pacman -S mate-extra (uses ~200MB)  
yaourt mintmenu, logoff/on, right-click MATE Panel, Add to Panel, MintMenu, Add

To enable disabled networking: systemctl restart NetworkManager.service

To install downloaded software: pacman -U /*folder/package-name.pkg.tar.xz*

To install downloaded .DEB programs, install: dpkg, then from Terminal in same folder, type: dpkg -i *package.deb* (NOT a recommended procedure!)

- Synaptic Package Manager can be installed on most versions of Linux & is a simple means of (un)installing software (even multiple selected programs in one go).
- To add a printer: do NOT install anything from the CD that came with the printer - that's for Windows (& possibly Apple) only & it won't work! Click menu, Administration, Printers, Unlock (Manjaro), Add. If printer is not automatically detected & installed, like Windows, you'll need to download & install the device driver (if a printer/scanner, it's likely there will be separate drivers for each) from manufacturer's website (e.g. Epson.co.uk). For Mint, type printer manufacturer name in menu search box &, if listed, select it to download & install the drivers for you! For Manjaro, search AUR (enter just model number digits & often, printer model numbers are within a series, e.g. 575i=5700) to install device driver. After installing driver(s), retry add. NOTE: Although Brother, Canon, Epson & HP have extensive Linux support, Lexmark have almost zero & are unlikely to be compatible! Canon call their printer drivers, "cnijfilter-model number/series" & their scanners use "scangearmp(2)". Epson often use "escpr" & "imagescan". For general scanner support, we've installed "sane" (Scanner Access Now Easy) & "xsane", a graphical 'front-end' for easy usage.
- Linux supports multiple 'work areas' (press Ctrl+Alt+Function key F1-F7 (F7=default)) allowing login for a terminal window... from there you can enter commands to install or remove programs, run updates or upgrades, fix issues, manually start the desktop (*startx*) or even restart Linux (*sudo reboot*).
- To reset root/login password (NOTE: this is NOT a security issue as direct access to computer is required!): first, turn on computer(!), then for Debian based: hold shift, select *Recovery mode*, root, type: *mount -o rw,remount / passwd username* enter new password twice *exit*  
RedHat based: on boot menu, edit, add *rw init=/bin/bash* to end of *Linux* line, press *F10* to boot, *mount -o remount,rw / passwd username* enter new password twice *touch /.autorelabel /sbin/reboot -f*
- Periodically, update software/package mirrors/lists (generally via software/package manager) to get fastest/most up-to-date lists.
- When using a file manager, to browse another drive, goto: /run/media/{*user name*}/{*device name*} or /media/{*user name*}/{*device name*}.
- To add Windows fonts, after copying to /usr/share/fonts/ttf or /usr/share/fonts/true type (depending on Linux version), from Terminal type: *sudo fc-cache -fv*
- To enable screen panning on low resolution monitors: from Terminal, type: *xrandr* & note 'screen-name' & 'maximum resolution', then type: *xrandr --fb XXXXxYYYY --output screen-name --panning XXXXxYYYY* (replacing XXXXxYYYY with desired resolution (within listed limits) & screen-name as listed. Or, to enable screen scaling, type: *xrandr --output screen-name --scale X.XxY.Y* (e.g. if 1024x600, 1.00x1.28=1024x768).
- To uninstall Windows programs installed via wine: run Terminal, type *wine uninstaller* then select program(s) to remove, or for all: *sudo rm /home/.wine*  
To remove orphaned menu items, goto: /home/.local/share/applications/wine (press *ctrl+H* to show hidden folders) & then just delete the shortcuts.
- If getting a program conflict error during updating, uninstall the listed program, retry the update & then reinstall the program (if still needed).
- If your hardware/devices are supported/working with open source device drivers, then avoid proprietary drivers as they often cause problems.
- If not booting to desktop, could be graphics driver incompatibility: on boot menu (hold shift), select *Advanced options*, edit, add *nomodeset* to end of *Linux* line, press *F10* to boot & after, if ok, to make permanent, run Terminal, type: *sudo nano pluma* (depending on Linux version) /etc/default/grub, change to match *GRUB\_CMDLINE\_LINUX\_DEFAULT="quiet splash nomodeset"*, save & exit, then *sudo update-grub* & restart to see if booting ok else try updating graphics drivers.
- For ANY operating system, if getting ANY errors, your first checks/reference points should be the publisher's forum on their website.

There are several useful websites we recommend:  
• [softpedia.com](http://softpedia.com) huge library of software with reviews of every program  
• [sourceforge.net](http://sourceforge.net) biggest library of open source software  
• [cupoflinux.com](http://cupoflinux.com) help & troubleshooting  
• [tutorialforlinux.com](http://tutorialforlinux.com) how to install or setup hardware or software

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