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Important Information For Linux Users

Linux a fast, safe & easy to use FREE alternative to Windows or macOS, with excellent hardware support & a vast catalogue of available software. In its various 'flavours' (e.g. desktop, Android, iOS, macOS, ChromeBook, smart TVs, corporate & internet servers, supercomputers, IoT (Internet of Things) devices, etc), there are SUBSTANTIALLY more devices running Linux than Windows (technically, Apple's macOS is based on BSD (which is based on UNIX, as is Linux), but they share the same core functionality & apps can be (if recompiled) cross-compatible with Linux. However, whereas macOS has little better than a micro-kernel, supporting very little hardware, Linux uses a monolithic-kernel, supporting vastly more! Generally, operating systems (e.g. Windows, Linux, macOS, etc) contain 3 main components: kernel, distribution (often referred to as "Distro") & desktop (there's separately also device drivers (some are built-in to kernel), software & data files)... In Windows & macOS, these are bound into 1 item & are not individually upgradable or customizable (generally, just colours, fonts, icons & background picture). In Linux, the entire desktop presentation/layout is changeable & customizable, there are many to choose from & you can install more than one (select desktop during login). You can also upgrade the kernel (upgrade may contain security or bug fixes or have better or enhanced performance or hardware support), without changing anything else & it only takes minutes to do so! Think of Linux distro's like Windows versions (e.g. XP, Vista, 7, 8, 8.1, 10 & 11), only there's over 300 to choose from! Depending on your hardware specification (or personal choice), we recommend the following Linux distro's & desktops (they all share the same Linux kernel):

updated: 20230309

	distribution	desktops	upgrades
	Zorin (Ubuntu LTS based) fast, very easy to use with familiar Windows, macOS or Android themes & quick upgrades suitable for both new & experienced users	custom G/X	every 2 years
	Manjaro (Arch based) very fast, easy to use & maintain & always up-to-date with lots of software best hardware support & good for gaming	M/G/K/X/C B/D/i3	rolling
	Bodhi (Ubuntu based) very fast, easy to use & highly customizable suitable for both new & experienced users & old/low spec computers	Moksha (Enlightenment)	every 2 years
	Garuda (Manjaro based) fast, easy to use & maintain, fault tolerant, optimized kernel & always up-to-date includes easy maintenance, settings & game menus	G/K/X/C	rolling
	Emmabuntüs (Debian based) very fast & beginner-friendly suitable for old/low spec computers	LXQT/X	every 2 years
	PC Linux (independent/Red Hat) robust & good hardware support suitable for more experienced users or Apple computers	M/K/X LXDE Trinity	semi-rolling
	Linux Mint (Ubuntu LTS based) easy to use & beginner-friendly suitable for new users	M/X/C	every 2 years

	desktop
	MATE highly customizable with a familiar "Windows" look & feel fast, easy to use & visually attractive (recommend "Blue Submarine" theme)
	GNOME easy to use, clean & modern user experience (presented like a mobile phone or tablet screen) limited customization, but excellent accessibility options
	KDE Plasma extremely customizable with a familiar "Windows" look & feel more suitable for experienced or advanced users
	XFCE basic, very fast, highly customizable (good for old/low spec computers)
	Cinnamon modern, stylish desktop, with a "Windows" look & feel minimal customization/functionality
Budgie	GNOME based, customizable
Deepin	HTML5+Webkit based, aesthetically pleasing
Enlightenment	basic, fast, customizable, animated actions
LXDE	GTK based, fast
LXQT	LXDE+Razor-Qt based, fast, modular
i3	basic, fast, suitable for advanced users
Trinity	fast & looks like Windows XP

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NOTE: in a *rolling* distro, software, bug & security updates are released as soon as they become available, but updates are quicker (so good for slow internet) & there's no upgrades... after updating, you have the current versions & always have access to the latest Linux kernel, device drivers & software available. However, leaving it too long before installing updates can 'break' the system - potentially fixable (see troubleshooting below), but may require a fresh install. A *point-release* distro has versions (e.g. Ubuntu 23.10, Ubuntu 24.04, etc) & regular updates for software, bugs & security, but no additional software or major changes until the next upgrade, often released every 6, 9 or 12 months (2 years for LTS), which either takes a LONG time (downloads the entire system, just to replace the packages that have changed) or requires a fresh install. By relying on older, time-tested versions of software, point release distros have greater reliability & stability. As rolling distros have the latest innovations & features, they may be necessary to support newer hardware or software, but maintenance could necessitate greater technical competence & knowledge. In a *semi-rolling* distro, third-party software follows a rolling release model (e.g. if came with LibreOffice v6, you'd get v7), but core system software is point-release based (this varies with distro as some also include Linux kernel & system libraries). Installing software via Flatpak or Snap (see below) mitigates these issues. When upgrading the kernel, Long Term Support (LTS, with 5 year's support) versions are recommended.

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NOTE: a desktop environment is not just a single entity, but rather a collection of all the software elements that make up the Graphical User Interface (GUI), commonly including their own preferred applications, icons, widgets, add-ons & extensions to provide extra features (i.e. a window manager: to display, move & resize application windows; a file manager: to browse, copy, delete, rename & access files; a panel: to provide a menu & display information such as date, time, sound volume & WiFi; a settings manager: to configure the 'look & feel' of the environment). Choosing a suitable desktop environment can help improve productivity, workflow, ease of use & overall experience.

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We always use the same username & password (for login & keyring) for Linux: username=owner, password=id (or password) &, if applicable, root password=root.

If you change password, Linux will insist on a 'secure' password & it'll have to be longer, often with a mix of upper/lower case letters &/or numbers/symbols... this can be tiresome when entering every time just for updates or installing a program & as passwords are easily removable (see General Linux troubleshooting below), there's no real advantage of changing it!

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To create installation media in Windows, download required Linux ISO file from publisher's website & then use either *ImgBurn* (imgburn.com) (*Write image file to disc, Browse for a file, select ISO, set Write Speed to 4x (or less), Write*) for CD/DVD (depending on size) or *Rufus* (rufus.ie) (*select Device, Select, browse to ISO, Start*) for USB. Most versions of Linux also support 'Live Boot', which means you can try it out (it'll automatically recognize most hardware!) without changing whatever is currently installed (on newer computers, disable 'secure boot' in BIOS first)!

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

CornerStone Software Suite: (from £39)

	Opera: fast & safe web browser with built-in VPN, ad-blocker, speed dial & chat messengers		Firefox: slow & basic web browser - but useful for compatibility with some websites		GFW: firewall, to prevent web based attacks
	LibreOffice: Microsoft compatible word processor, spreadsheet, presentation, desktop publisher & database		Mozilla Thunderbird: secure email client with spell checker, anti-SPAM, anti-phishing, automatic updates & customizable interface.		RustDesk or AnyDesk: remote control of another computer - we offer support at £5 per 10 minutes
	Proton VPN: Virtual Private Network (VPN) - access websites blocked by region		VLC: media player with many built-in codecs for CD/DVD & audio/video files		Clementine or Strawberry: music player, manager, MP3 player, synchronization & CD ripper
	Cheese: webcam viewer & recorder with visual effects		Brasero: CD/DVD/BD audio/video/data (re)writer		Shotwell: picture viewer, grouping pictures by year, month & date
	Microsoft Skype: internet chat, voice & video & reduced rate computer to telephone calls		Zoom: internet chat, voice & video & collaboration with large & small teams		qBittorrent: torrent client for quicker downloading - use a VPN or unblockit.dad to access blocked websites
	Google Earth: satellite imagery of Earth & Mars		GIMP: advanced photo editor, compatible with Adobe Photoshop		BleachBit: disc space & application cleaner, privacy manager & system optimizer
	Double Commander: twin window file manager		Déjà Dup: file & disc backup		TimeShift: create or schedule system 'snapshot'
	Psenor: monitors & alerts high temperatures		GSmartControl: show HDD/SSD status, statistics & error logs & perform SMART tests		SANE & Xsane: Scanner Access Now Easy - scanner support & graphical interface
	Nala (for Debian/Ubuntu based distro): front-end for APT package manager with parallel downloads & history		Microsoft Fonts: fonts used by Microsoft Office, so existing documents will look the same		Games: cards, puzzle & arcade/action games

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

	Spotify: stream music from millions of available tracks		Dropbox: store, sync & share files in the cloud		Microsoft Online Office: Microsoft's web based versions of Word, Excel, PowerPoint, Outlook, etc
	DVD Styler/Bombono/Open DVD Producer: make DVDs from pictures or videos - includes templates & visual effects		Inkscape: vector graphics editor, similar to Adobe Illustrator or Corel Draw		Scribus: professional quality desktop publishing
	Send Anywhere or Nitroshare: allows sending/receiving files between Linux, Windows, Android, macOS & iOS		XnConvert: batch picture/image converter - size, resolution, quality, format		4K Video Downloader: download videos from YouTube, DailyMotion, Facebook, etc.
	Krita: image editing, similar to Adobe Photoshop or Corel Painter		Open Shot: non-linear video editing - includes visual effects		Shotcut: non-linear video editing - includes capture & visual effects
	Steam: online gaming platform with 1000's of available titles		Neverball: tilt the floor to roll a ball through an obstacle course before time runs out.		Mahjong: classic game of matching pairs of tiles
	Mines: clear hidden mines from a minefield		Quadrappel: falling blocks game (like Tetris)		Extreme Tux Racer & Super Tux: penguin slalom & "Mario" clone
	Billiard GL or FooBilliard++: 3D billiards game		Brutal or Dream Chess: 3D chess games		Super Tux Kart or Torcs or Trigger Rally: 3D racing games
	Hedge Wars: turn-based artillery game		Scrabble 3D: 3D version of popular word game		AstroMenace or Chromium B.S.U.: 2D scrolling shooter games
	3D first person shooters: Alien Arena, AssaultCube, Legends, Nexuiz, Red Eclipse		3D first person shooters: Smokin' Guns, Tremulous, True Combat, Urban Terror, Warsaw		3D first person shooters: Wolfenstein, World of Padman, Xonotic, Zero Ballistics

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NOTE: Adobe Flash was discontinued on 31/12/2020 & blocked from 12/01/2021. Do NOT install Adobe Flash, Oracle Java or Adobe Acrobat (all unsafe). Acrobat/PDF support is included in Linux & also in most web browsers (which also include Java).



Table of Contents

1. Things to do first initial steps before starting to use computer

2. Connecting to the Internet.....how to connect computer to internet

3. Censorship..... how to add another layer of security while browsing

4. Cookies.....what they are & what they're for

5. WiFi security how to prevent other people or devices accessing your internet

6. Using programs how to open, use & close programs

7. Password keyring & file permissions..... default for storing passwords & changing file access rights

8. Application Store..... how to install or uninstall programs

9. Office suiteMicrosoft Office alternative & recommended file formats

10. Applepotential compatibility issues with Apple hardware or software

11. Data backup..... location of files previously backed up

12. WINE..... how to (possibly) run Windows programs in Linux

13. Web browser recommended & not web browsers, setup & safe usage

14. Email.....how to (re)setup email access, recommended providers, how to access & how email works

15. Hardware supporthow to install device drivers

16. Printer & scanner how to add a printer/scanner & how to fit & use ink cartridges

17. Hardware issueshow to troubleshoot hardware issues

18. Security how to stay safe online

19. Updateshow, when & why to install updates

20. Update issues..... how to overcome update issues

21. System snapshotshow to restore previous system state in the event of an issue

22. Universal Serial Bus USB, what it is & what it can & can't do

23. Files & folders.....how & where to store your files & what they are

24. Screen position..... how best to position a screen & how to avoid tiredness

25. Search enginesgood & bad search engines & how they work

26. Social media cons & scams how to avoid being conned or scammed online

27. Ransomware what it is & how to avoid or overcome issues

28. Browsing..... what to lookout for to avoid malicious websites

29. Web passwordshow to resolve issues when signing into websites

30. Secure websiteshow to recognize a secure website & password usage

31. Internet scams & identity theft..... what to lookout for to avoid becoming a victim

32. Performance issueswhat will & won't make a difference to computer performance & disc space

33. Casting, mirroring & streaming..... using a wireless display

34. Backing up data files..... how, when & where to backup important files

35. Scanning.....how to scan pictures or documents

36. Keyboard shortcuts..... keys commonly used in word processors & why they were chosen

37. Cleaning..... computer cleaning regime, why it's necessary & risks of not doing it

38. Printer inks.....printer running costs

Troubleshooting Debian/Arch/Red Hat/Solus Linux troubleshooting & support

General troubleshooting..... how to & help for more general issues

Recommended websites websites with either help & instructions or downloadable programs

updated: 20230804



1. Things to do first:

- read these notes (skip any not applicable), paying extra attention to yellow (important) & red (critical) highlighted ones! (there's a copy on the desktop & also 4 documents of police advice on how to spot & avoid various types of fraud & scams).
- connect to internet - see #2 below **(TAKE NOTE OF POTENTIAL ISP BLOCKING ISSUES IN PARAGRAPH #3).**
- install all available updates - see #19 & #20 below.
- install device drivers for any peripherals (e.g. printer) - see #15-#17 below & *General Linux troubleshooting*.
- install any other required software that isn't included in the *CornerStone Software Suite*. Be mindful you'll need to know your login details (generally an email address & password) for anything that's web based or requires activation. This isn't anything we could know, backup from previous installation or find out for you, so you'll need to know them! If it's just password you've forgotten, then it's common you can reset it via publisher's website.
- copy back any data files from external drive(s).
- start using computer... remember, you'll need to know your login details for email & websites as none are currently known to web browser(s), unless you previously signed into your browser & had sync enabled (obviously, you'll need to know the browser account details to sign-in again, which are usually email address or telephone number & password).

TO DO LiST
1. **FiRST**
2. **THiNGS**
3. **FiRST**

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2. Linux connects to the internet EXACTLY the same way Windows or macOS would. If using a router for internet connection, do NOT install ANY software from your internet service provider (ISP) - NONE is required (it's likely to just be an anti-virus trial & even more likely to be a 'bad' one, but it wouldn't be compatible with Linux anyway!). If it was already setup & previously in use, see below for connection options, else if you have a new router, supplied by your ISP, it's common, but not guaranteed, they would have already set it up for you. If you bought a router independently, it definitely won't be setup. Depending on the type of internet connection you have (e.g. ADSL, fibre, Fibre-To-The-Premises, etc), you might first need to contact your ISP to get setup details & configure the router.

- LAN/network/cable (8 pin RJ45 plug, UTP/STP, category 5e/6 - this information is often printed on the cable) - plug RJ45 lead (can come in any colour, but black, grey & yellow are common), one end into a router output socket (generally labelled as "LAN", not to be confused with "WAN" which is an input socket) & the other end into a LAN socket on computer & you're connected (same as Windows & macOS). NOTHING MORE IS REQUIRED. A cable connection is the most secure as it can't be 'listened to' or 'hacked' like a WiFi connection & no passwords are required as it's a physical connection.
- WiFi (wireless) - if WiFi auto-connects, that means you have an unsecured router with no WiFi password setup, so anyone nearby could use your internet for free(!) - potentially this could cost you a lot of money, if you have a usage limit & they take you over, but at the very least, they could slow down your internet speeds & it's also possible they could access files on your computer(s) or even access security camera(s) (if you haven't changed default passwords)! If this is the case, you should immediately setup the router (see manual) & change the name (SSID), login password & WiFi password(s) & then reconnect. It could also be you've connected to someone else's nearby, unsecured or a 'malicious agent's' router, so disconnect straight away. To connect to your router, click network connection icon by clock (image varies for different versions of Linux & desktop: signal bars, little screens or a globe are common, but it'll say "not connected" or "connections available" (or words to the effect) when you put the cursor over it) & it'll display in-range routers/networks. If no routers/networks are listed, check your WiFi device is installed (physically, is the adapter present & correctly seated/inserted), check the device driver is installed, which might need a LAN connection to download) & enabled, check WiFi radio/signal is enabled & airplane/flight mode is off (on same network menu, possibly accessed via right click) &, if using a portable computer, check WiFi is switched on (via a physical key, switch or button). If still not working, it could be either a bad/corrupted device driver (remove & reinstall, which might require a LAN connection to download) or the WiFi adapter or slot/socket has failed. If other routers/networks are listed, but yours isn't, check router is plugged in, switched on & LEDs are lit & if you can connect via a (modern) mobile phone or tablet or another (modern) computer, that could mean 2.4GHz isn't enabled on router (meaning the other devices are connecting via 5.0GHz & this computer only supports 2.4GHz. See router manual for how to enable 2.4GHz). If still not listed, you're either out-of-range, so move computer closer, or there's a fault with the router or service, so contact your ISP. If yours is listed, select & enter the router's current WiFi password (either password entered when router was setup or whatever was assigned by ISP (which should be changed immediately) - often either printed on router or supplied on a card (if you're unable to read this, either use a magnifying glass or take a picture with a smart phone or digital camera & then you can 'zoom in' to make the writing bigger!)) when prompted & you're connected (same as Windows & macOS). If you change router's WiFi password, you'll need to remove it from stored networks so Linux (& Windows & macOS) will re-ask (click (for some versions of Linux or desktop, right click) network connection icon, Edit/Network Connections, select connection, click "-" to remove & then reconnect as per above). If you're starting afresh with a new router, it may need to be setup before use (check ISP's supplied instructions).
- 3G/4G/5G USB modem - plug modem into a spare USB socket (at least USB2 speed) on computer, click network connection icon & select mobile network (may be named, e.g. Vodafone), then follow prompts to select internet provider & service type (contract/PayAsYouGo) & it'll automatically connect (NOTE: some modems/providers require entering details for APN, username and/or password (e.g. Vodafone password is *web*), so you might need to check with provider). Technically, this is a mobile phone, just without a screen or battery, so the exact location affects signal strength - if low/poor signal, try moving the computer, ideally closer to a window, ideally towards the direction of your network's mobile mast outside.
- MiFi - connect as per WiFi above. Technically, this is also a mobile phone without a screen (maybe just some LEDs), but it does have a battery, that needs to be charged regularly & location also affects signal strength - as it's portable, you could place it by a window, again towards the direction of your network's mobile mast outside.
- Tethering - from a mobile phone or tablet or a WiFi 'hotspot' - connect as per WiFi above.

If Linux has been reinstalled or you previously had Windows or macOS installed or you have a different computer to before, then it won't yet know your router & WiFi password until you tell it... It's a one-off procedure, that you did in exactly the same way previously, when you first connected your computer to that router & after, Linux 'remembers' it for next time. **Until connection is (re)established, you CANNOT browse internet, check email, search, download, update ANYTHING from the internet** (same as Windows & macOS)! If you've forgotten your WiFi password, you can't find out what's stored on the router, but you can change it (a router reset 'might' return it to whatever the default was, but could also just wipe it completely & you'd need to re-setup the router!). Router access details & default password(s) are either supplied on a card with the router or printed on a sticker on the router. Plug a network cable (should be supplied with router, else we sell 2m @ £2.50 (also available: 3m, 5m, 10m, 15m, 20m, 50m) into router & computer (some newer portable computers don't have a LAN/network socket, so you can't do this without getting a USB to LAN adapter), load a web browser (e.g. Opera), enter router's IP address (e.g. 192.168.0.1), enter router's login details, browse to WiFi/WLAN/etc settings, delete the current WiFi password (it'll likely be displayed as dots or asterisks) & just enter/make up a new one (then write it down & keep that somewhere safe!), save settings & then connect as per above. Any other WiFi devices (e.g. mobile phone, other computer, TV, etc) will also need to reconnect with this new password.



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3. Some ISPs (reported with BT/EE, TalkTalk, Sky & Post Office (now Shell Oil) - rated by OFCOM & Which? as amongst the worst in the UK for reliability, speed, customer support & costs!) have started blocking secure internet connections, so they can continue to record your browsing habits (this is something they've been doing for years, but it's now possible to block them, so they've started blocking the blocking!) & use or sell the information (this is a serious privacy issue!). If connected to internet but you can't access ANY website, you might need to disable *DNS-over-HTTPS* (DoH: encrypts web address lookup to improve security & privacy) (common with TalkTalk, Sky & Post Office) or *Virtual Private Network* (VPN: routes internet connection through a different server to hide your actual 'IP address' (to block location tracking) or, if set to another country, for region bypass) (common with BT/EE). The VPN could be built-in to your web browser (e.g. *Opera*) or could be a 3rd party program (e.g. *OpenVPN*, *Riseup-VPN*, etc). Most major web browsers have built-in DoH...

Opera: Menu, Settings, Browser, System, Use DNS-over-HTTPS instead of the system's DNS settings
Microsoft Edge: Menu, Settings, Privacy, Security
Mozilla Firefox: Menu, Tools, Preferences, General, Network Settings, Settings, Enable DNS over HTTPS
Chromium based: {browser name}://flags/#dns-over-https (replacing {browser name} as appropriate (e.g. chrome, etc))

...to protect against 'man-in-the-middle' attacks (where your intended website is redirected to another, that may look similar, but will record your login or payment details to use or sell) & can prevent access to known malicious websites (these often contain infections that can install without you clicking on anything (your browser should block these, as long as you have a popup blocker & an up-to-date advert blocker installed & they're both turned on & setup)), providing you with safer internet at no cost or effort to you, however, it's generally turned off by default! To enable, see above or browser website help or forums, but if your ISP doesn't support it (i.e. getting nothing but DNS errors), you'll need to disable it! Some ISPs 'piggyback' off another, so although 'your' ISP may not restrict access, the actual service provider might. If you don't use a VPN or DoH, then it's likely your ISP WILL record & use or sell your data anyway! Many also record location, ethnicity, sex, sexual orientation, job status, marital status & much more with little or no control over how they use it! Targeted information has great value to advertisers & ISPs can make a lot of money from your data! The Domain Name Server (DNS) is basically a 'phone book for the internet' & it can be read by anyone, so DoH encrypts web addresses & includes them in standard HTTPS traffic, preventing recording or blocking. Although DoH adds an additional layer of protection & increases privacy, your browsing can still be inferred by ISPs (albeit in a reduced manner), so using in conjunction with a VPN is better. Until IPS are barred from 'stealing' your data, it's highly immoral, massively infringes on your privacy, limits your internet safety & removes any & all confidentiality, but you 'might' be able to use a VPN and/or DoH to block them. If you just get a blank webpage, with no error message, this is likely to be a cookies issue (see #4 below).

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4. Many websites use 'cookies' to store your information & settings for their website (e.g. location for local news or weather)... this is literally just a text file & poses zero infection risk. However, more 'dubious' websites can use the cookies to track & record other information & usage habits, even from different websites, which they can then use for specific targeted content or adverts or they can sell to 3rd party companies who build up a profile of your internet use. Companies like Facebook & Google may well have thousands of records on an individual (they are legally required to provide this information to you upon request) & they make a LOT of money by selling it. For privacy reasons, you would want at least 3rd party cookies (content not related to the main website you're browsing) blocked by default, which could be either all the time or just when the browser is in 'private mode' (this stores & tracks nothing, leaving no trace of the sites you've been to). However, whilst European law requires ALL websites to prompt for you permission to use cookies, some websites are now insisting you accept or you can't access the website. Some quite legitimate websites will use 3rd party companies to handle the cookies, meaning if blocked by the browser, you could be presented with a blank page even if you've selected 'customize' to see what information they want, so you can select which cookies you're willing to accept... in those cases, you'll either need to not use that website (recommended), or temporarily change your browser settings to not block cookies (change back again after exiting that website). For example, in Opera, goto *Settings, Privacy and security, Cookies and other site data, General settings*, select which cookies policy you want/need to use.

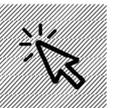


5. For WiFi/wireless security on your router, make sure you're using the WPA2 (or newer) protocol with AES encryption (check router's manual for how to access settings). WEP (slow) & WPS are both easily 'crackable' & WPA1 isn't encrypted at all! Additionally, always change the default router name & password 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!



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6. To run a program in Linux, do EXACTLY the same as Windows or macOS... shortcuts on desktop are double-left click to run (unless mouse/touchpad has been set to single click, via *File Explorer, View, Options, Click items as follows*), shortcuts on menu, quick launch (if present, next to menu) or dock (if present) are all single left click. If mouse/touchpad is set to left-handed mode, left & right are reversed. To exit a program, do EXACTLY the same as Windows or macOS... click [x] in top left or right (depending on theme) edge of program window, or program may have a menu with Quit/Close/Exit/etc. When running a program, do EXACTLY the same as Windows or macOS to access functions/features by clicking the menus... For example, while in a word processor, click *File, Save As* then browse to the folder where you want to store the file & enter the name you want to give it, then click *Save/OK* to store it (if saving a new copy of an existing file you've made changes to, just click *File, Save* to overwrite the old copy). There may also be icons on the toolbar at the top/bottom/sides with the same functions. There is ZERO difference in everyday program operation between Linux, Windows & macOS. The same version of the same program (e.g. Skype, LibreOffice, Thunderbird, any web browser or website, Spotify, etc) will look pretty much identical for all three (excepting different themes, colours, etc (e.g. light & dark)).



updated: 20230310



7. Similar to Apple's macOS, Linux uses a 'keyring' to store passwords (for example, in web browsers for remembered website logins). The keyring too has a password & our default is the same as the user password, *id* or *password*. Files (e.g. documents, pictures, etc), like Windows & macOS, can have "read-only" permissions, preventing overwriting or changing... to change: right click file, select Properties, Permissions, change access for required group(s) to "Read and write".



8. Similar to Microsoft, Apple & Android application (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 to install or uninstall (NEVER delete programs, ALWAYS uninstall else you can 'break' Linux (& Windows & macOS!)) any program you do/don't want (click 'tick box' next to program then click 'Apply'). You will be informed if program "A" needs to be installed before "B", but this is just for reference & you might be prompted to select or confirm various plug-ins - check to see which, if any, are applicable or wanted/needed & select accordingly. As a general rule, **do NOT put CD/DVD into computer to install software** (certainly not Windows or macOS based!). Any Debian or Ubuntu based (.DEB) Linux (e.g. Zorin or Mint) or Red Hat based (.RPM) Linux (e.g. PC Linux or OpenSUSE) also support installing downloaded programs (see below for recommended websites) & Arch based (e.g. 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!). Programs may also need to be compatible with the installed desktop (e.g. GNOME, KDE, XFCE, etc) - most versions of Linux we install are GNOME compatible, but if you've installed something else, you'll need to check. Many versions of Linux also support 'Snap' or 'Flatpak' - these include all required dependencies for a program & are cross-desktop & Linux type (e.g. Debian, Red Hat, Arch, etc) compatible, but will take longer to install. Snap are maintained only by Canonical, who can be slow in releasing updates, whereas Flatpak are independent, so are the preferred option. Using them mitigates the limitations of 'point-release' Linux not offering the latest version of a program.



updated: 20230804

9. 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 was discontinued in 2010), which is FREE & compatible with Microsoft's Word (word processor), Excel (spreadsheet), PowerPoint (presentations), Publisher (desktop publishing) & Access (database, via ODBC). For greater compatibility with other office suites, it's recommended to save files in Microsoft 1997-2003 format (e.g. documents as *.doc* NOT *.docx* or *.odt*; spreadsheets as *.xls* NOT *.xlsx* or *.ods*; presentations as *.ppt* NOT *.pptx* or *.odp*) - these formats haven't changed since 1997, so if sending files to someone, you can be fairly sure they'll be able to open them (if not, implies their office software is incredibly old!). Microsoft's "x" formats are NOT a standard & even differ between different versions of Microsoft Office! The world standard *Open Document* format (e.g. *.odt*, *.ods*, *.odp*, etc) isn't well supported by Microsoft Office, so is only recommended for files for yourself (i.e. not sending to anyone else - this is true for any files, the format doesn't matter if for personal use only) - they are, however, smaller & safer than the Microsoft equivalents. If you have a licence for Microsoft Office, it can generally be installed in Linux via Wine (see below).



updated: 20230804

10. Currently, Apple, despite technically using (a heavily cut-down version of) Linux themselves (macOS/iOS), do not offer a version of iTunes (discontinued in 2019 & replaced with Apple Music, Apple Podcasts, Apple TV & Finder) for Linux, so for most iPhones, iPads, iPods, etc, use *Clementine* to copy/sync music. Whilst any files can just be copied to/from, most Apple devices are so basic they offer no option to update lists! If sync doesn't work for you, you'll have to use a computer with Windows or macOS & iTunes (iFunbox for Windows 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 often don't support Linux! However, you might be able to 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 DRM protected content (e.g. Netflix, Amazon Prime, BT Sport, etc) will need *widevine* browser plug-in installed (built-in to Opera, Chrome & Firefox (the latter two are slow, unsafe & incompatible, so should be avoided where possible)).



updated: 20230804

11. If you had requested a data backup, then your data files (i.e. documents, pictures, music, videos, downloads & fonts) 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' (e.g. email files from a client other than Mozilla Thunderbird (which would have been restored)).



updated: 20230307

12. Linux is able to install & run Windows based programs (do NOT try to install hardware device drivers this way)... To install Windows software, use Wine & PlayOnLinux (if not already present, install from Package/Software Manager) & if it's in the PlayOnLinux supported program list, just select it to automatically download & install the program for you. For anything else, try installing the downloaded ".exe" program, as you would in Windows (it'll use Wine), but be mindful not everything will be compatible.





13. Since most infections are web based, a safe web browser, correctly setup, is absolutely CRITICAL to limit attacks. We recommend, install (if compatible with computer & version of Linux) & setup *Opera* & *Firefox*. Opera has a built-in popup & ad-blocker (making browsing safer & up to 3x faster), a VPN (Virtual Private Network, to access websites blocked by region), speed dial (like bookmarks, but often with website logo for quick & easy access), secure DNS-over-HTTPS (preventing 'man-in-the-middle' attacks & blocking access to known malicious websites), popular chat messengers (e.g. *Facebook*, *Instagram*, *X (Twitter)*, *Telegram*, *TikTok*, etc) & lots of available plug-ins (to add additional functionality). Firefox is a slow & basic web browser that has lots of available plug-ins (we install & setup an ad-blocker) & is included only for compatibility reasons (some older websites won't display properly in a modern web browser, so having multiple choices means if it doesn't work in one browser, you can try another). Google Chrome is technically just a spyware infection, sitting on top Chromium browser, recording & selling your data, so it's NOT recommended! There are MANY browsers based on Chromium (e.g. Opera, Chrome, Vivaldi, Brave, Microsoft Edge (new version), etc), so if a website works in one, it should be no different in another. **Whichever browser you use, it's HIGHLY recommended to use the online synchronization feature** (included in most modern browsers) **to save your bookmarks/settings/passwords/etc online...** This allows access between different computers & ensures you won't lose them when hard disc drive (HDD) or solid state drive (SSD) fails! Anything entered into the address bar, which isn't in the format of a web address (i.e. *site.domin{.sub-domain}*), is deemed to be a search. For example: "*bbc.co.uk*" (exists) & "*bbc.abc*" (doesn't exist) are both in the right format, so both would be checked for availability, but only *bbc.co.uk* displayed with *bbc.abc* reporting address unknown. Whereas, "*bbc*" isn't in the right format, so would be searched for instead. When you don't know a web address, type what you do know to help find it (e.g. "*bbc*" will show *bbc.co.uk* in the search results, but so too would "*news*"). We set the default search engine to *DuckDuckGo* - they are privacy oriented & don't record or track anything, but have optional search filters for where (country) & when (last day, week, month, etc). Since Google call themselves a "*Content Provider*" NOT a search engine, they will only show results where they received advertising revenue! Microsoft's *Bing* uses *Yahoo* (this is changing to the other way around as Yahoo sells assets), but is pre-filtered to show less. If a webpage is displayed with writing too small or big to read, pressing Ctrl +/- zooms in/out & is 'remembered' per website, so the next time you go back to the same webpage, it'll have the same zoom settings.



updated: 20230804

14. To access email (after (re)connecting to internet (see above)), you'll need to know your email address & password to login. If you've forgotten your email address, ask someone who's previously sent you an email to tell you what address they used. If you've forgotten your password (they're case sensitive, so "abc" is NOT the same as "aBc" - try swapping case & trying again), via a web browser, goto the email service website (e.g. outlook.com, bt.com, etc) & click "Forgot password" (or words to the effect) on the login page to reset your password. They may text a code for you to enter or send a link to another email address or ask security questions, depending on what information you gave when originally setting up the email address & after confirming, you can create a new password. ALL email has ALWAYS had a password to login... previously, you may have instructed your web browser or email program (client) to remember these details & enter them for you after the first time you logged in - you can do the same again, once you login this time. If you use a 'web based' service (e.g. Yahoo, Outlook (the new name for Hotmail) or Gmail (NEVER send confidential emails via Gmail as Google sell them & say people, not just computers, will read them!) then it's not stored on your computer so you just go to their website & sign-in to access your email & contacts as before. If you previously used an email client (e.g. Microsoft Office Outlook, 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 (use ImportExportTool plug-in) the email & contacts from the backup folder. Most internet providers include help on their website on how to do this. Ideally, always use a webmail email provider (e.g. *outlook.com*), NEVER anything from your internet service provider (e.g. BT, TalkTalk, etc) so when you change ISP, you don't lose your email address (e.g. yourname@talktalk.net) & you can access your emails from any internet connected computer, tablet, smart phone, etc. Webmail never needs to be backed up, you can access it from anywhere on the world & you can't get infected from malicious attachments unless you manually download & open them! If you have used an email address from your ISP, changing all the websites & services you've previously signed up for could be VERY time consuming (assuming you even know them all!?) & for some ISPs, you'll actually need to pay them (often £8 per month!) to keep the account active (at least until you've changed everything). If you have pre-printed business cards, stationery, etc, then you'll probably want to use that up before making changes. Using ISP email can become quite costly when you later realize you made the mistake. For SPAM email, NEVER unsubscribe else you've confirmed address is 'live' & you'll get far more & malicious emails!



There's a common mis-understanding about email, in which people think email is being sent to them or their device(s) (i.e. computer, telephone, tablet, etc)... This is a critically important & fundamental error as email is NEVER sent to people or their devices, it is ONLY sent to the email service provider (e.g. yahoo.co.uk) & 'you' can then look at (via a web browser) or download (via an email program (client)). If you have an email client (e.g. Mozilla Thunderbird, etc) that's setup to check, for example, every few minutes & the device is connected to the internet, then it can alert you when new emails arrive. But, if it's not setup to check or the device is not connected to the internet, then obviously it can't tell you! If you view email on a website (e.g. yahoo.co.uk) in a web browser (e.g. Opera, Edge, Chrome, etc), then again, if you're not running the browser, with that page displayed, or the device is not connected to the internet, then you'll not know about any new emails. It's irrelevant how often you check, look or not as the email address will still be able to receive emails, you just won't know about them until you're next able to check. There's one exception, that will prevent any new emails getting through & that's if your email mailbox is full... this is uncommon these days as most email providers allocate quite a large amount of space, generally enough for many year's worth of emails. Additionally, however you access emails, any attachments don't exist as usable files on your device until they're downloaded or saved from the email, selecting a folder to store them in & optionally giving/changing a filename. If you need access to previous emails, even when not connected to the internet, then you'll need to use an email client & the recommended choice for safety, speed, features, ease of use & compatibility, is Mozilla's Thunderbird (available for Windows, Linux & macOS).



Understanding Email



15. Unlike Windows, Linux has substantial hardware support already built-in, so for the vast majority of devices (e.g. WiFi, Bluetooth, webcam, modem, 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! See below for more details regarding printer setup.



updated: 20230310

16. To add a printer: do NOT install anything from CD that came with printer - that's only for Windows (& possibly macOS) & it won't work! Click *menu, Administration/Preferences/Control Centre* (name varies on different Linux versions, but look for *printer setup, hardware setup, or words to the effect*), *Printers, Unlock* (if present), *Add*. If printer is not automatically detected & installed, like Windows & macOS, 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 (or any 'Arch' based Linux), search *AUR* (enter just model number digits & often, printer model numbers are within a series, e.g. 5751=5700) to install device driver. After installing driver(s), retry *Add*. Once installed, right-click printer & ensure *enabled* is ticked then click *properties* & ensure paper size is set to *A4*, not *Letter*. For scanner support, we've installed *sane* (Scanner Access Now Easy) & *xsane*, a graphical 'front-end' for easy usage.



NOTE: Although Brother, Canon, Epson & HP have extensive Linux support, Lexmark don't & are unlikely to be compatible! Canon call their inkjet printer drivers, *cnijfilter-model number/series* & their scanners use *scangearmp(2)*. Epson often use *esc/p-r, printer-utility* & *imagescan* (see: download.ebz.epson.net/dsc/search/01/search/?OSC=LX). For HP use *HP Device Manager* (install, if not present) to automatically download, install & configure drivers & firmware. When printing, make sure the indicated printer is the one you want to print to - most software 'remembers' the last selected output device - & look for *Print...* (often via *File* menu or by pressing *Ctrl+P*) rather than *Print* on menu as this displays the printer dialogue options allowing you to: 1. confirm the correct printer is selected, 2. select number of copies & which pages to print, 3. specify desired print settings (e.g. print resolution/quality, orientation, page size, etc). If items are unable to print (e.g. sending A3 document to A4 printer, which can't work, so blocks print queue for everything sent afterwards), then cancel items in the print queue from last to first, else you could get multiple copies printing of items sent after the first. It's very rare for websites to have a print option (email being an obvious exception), so when selecting print from browser menu, unless it supports *reader mode* (removes all extraneous content), then browser has no way to know which part(s) to print, so you'll get everything on the page: text, pictures, menus, adverts, etc

updated: 20230308

When fitting ink cartridges, it's common they will have a plastic 'tab/tape/cover', stuck on one edge, that **MUST** be removed first (there might also be a clip support to remove). It covers an air vent & **MUST** be removed to allow ink to exit the cartridge (imagine holding your finger over a straw that's full of water - the water can't come out until you uncover the top, releasing the vacuum seal). Failure to do this could literally burn out the nozzle for that colour, meaning it'll never be able to print properly again! Also, when inserting, make sure the cartridge 'clicks in' ok, else it won't be detected. For Canon inks, if the light doesn't come on when inserted, place the plastic tab in front of the clip & this 'tricks' the printer into seeing the cartridge (it might inhibit ink level monitoring, so pay attention to indicators & how printing looks)! Some printers warn when inks are low, encouraging you to change them, but if that colour is still printing ok, it's NOT yet empty, so ignore until it starts to fade/break up & you'll get more printing per cartridge.

17. If hardware (e.g. printer, WiFi, etc) 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? For printers: is there ink in the cartridges & are they correctly inserted, is there paper in the tray, is there anything blocking paper input/output, is there anything stuck in the print queue (e.g. A3 document sent to A4 printer can't print thus blocks everything after- delete entries from last to first if multiple copies sent). For notebook/laptop/netbook computers, it's common there's a switch/key/button to enable/disable WiFi, so if not listing any networks, check it's turned on! Plus, if manufacturer supports it, we correctly set function keys to be F1, F2, F3, etc on single press & function (e.g. volume up/down) via Fn+function key (it's MUCH more common you'll use F1, F2, F3, etc). However, some manufacturers don't support configuration, so try with/without Fn+key.



18. Linux is MUCH safer than Windows & macOS, so although a firewall (e.g. GFW) is highly recommended to stop internet attack attempts, anti-virus is optional (Windows infections can't infect Linux!), as long as you keep everything up-to-date. Web browsers **MUST** be setup, prior to use & **MUST** have an ad-blocker installed, setup, updated & enabled, else you risk exposure to *malvertising* (malicious code hidden 'behind' adverts, even on 'safe' websites) attacks. However, there are various free anti-virus programs available with *Clam* & *Comodo* being popular choices for checking (downloaded, e.g. via Thunderbird, NOT webmail) emails.



updated: 20230310



19. Unlike Windows' monthly updates, Linux updates are released as soon as they become available & you'll be alerted (often via 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! If you've ever had an Android (which is based on Linux) telephone or tablet with even just a few dozen apps installed, you'll have noticed almost daily updates, but they're quick - the same is true for Linux, the more programs you install, the more potential there is for updates. Before doing any updates, it's good practise to refresh software mirrors (generally via software/package manager), to ensure you're using the fastest available servers & use UK only mirrors as it's quicker. Remove any orphan packages (generally via software/package manager) as these are no-longer used/needed but may affect other updates. Lastly, refresh databases so you'll have latest package lists. Out-of-date mirrors or databases may not be available or have the latest programs causing updates to fail (NOTE: "package" is just another name for "program" or "software". A "mirror" is a computer 'server' containing available updates. Linux, Windows, macOS, Android, etc all have multiple mirrors located all over the world).



updated: 20230310

Don't leave it too long to install updates... You'll be alerted (icon by clock & popup message), EVERY time system boots, if there's any available! Check, ideally weekly, but at least monthly, else you can 'break' Linux! Almost everything would continue to work normally, but an out-of-date system or software could create compatibility issues (e.g. unable to login to online banking, shopping, email, etc). Often easily fixable in Manjaro (potentially doable, but much more effort in other distro's), else may actually need to reinstall latest version! Think of it like sticking with Windows 7... It's still Windows, but as 7 is no longer supported, a lot of software that works ok in 10/11, isn't compatible with 7.

20. 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/omit the offending one! Or, if multiple possibles, try unselecting/ignoring all updates & doing just a few (e.g. 10) at a time until you identify the culprits. 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 or 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 (for the sake of stability, avoid 'real-time' or 'experimental' versions) before being discontinued. However, on newer computers, you might need the latest kernel to support the newer hardware. For more detailed instructions on how to overcome update issues, see Troubleshooting below, for different Linux types.



updated: 20230310

21. When completing a Linux installation, if compatible with that version, we install & run *TimeShift* or *Systemback* 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 or Systemback & restore stored backup). Manjaro Linux supports (install *timeshift-autosnap-manjaro*) auto-creating a TimeShift backup whenever a program is updated via Package Manager (this is only appropriate if disc file system is *BTRFS* as backup is almost instant!)... These backups use disc space, so if running low, delete the older ones (within TimeShift).



updated: 20221012

22. Universal Serial Bus (USB) is an industry standard specification for cables & connectors for communication & power. There are MANY different plugs & sockets (e.g. A, B, C, mini, micro, lightning, etc) & different devices (e.g. computers, tablets, cameras, telephones, etc) & manufacturers (e.g. Samsung, Apple, Nikon, etc) use different (sometimes proprietary) sockets & each has a different name (so you know what to buy as "USB to USB" says nothing about the plugs or sockets!). Printers use *USB A male* (plug) from computer to *B female* to printer. Extension leads are generally USB A male (plug) to A female (socket). Computers generally have USB A or C sockets, which, without a separate convertor, don't carry video & two computers can't be linked together. Black USB sockets are generally USB2.0 (unless "SS" (super speed) then USB3.x) & blue are USB3.x, which are MUCH faster. Other colours generally mean higher power output (standard is 0.5amps, so could be 1.0amps or more). Try to reserve the faster sockets for devices that will benefit (e.g. USB HDD/flash).



updated: 20230310

23. Individual data items (e.g. documents, pictures, music, videos, etc) are called, "files" & are stored in containers called, "folders". It makes sense to name them based on their content & to store them in appropriate folders (e.g. a Christmas shopping list called, "today" stored in the "Pictures" folder wouldn't be quick/easy to later locate). Folders can themselves contain folders, so files can be compartmentalized for better grouping by category (e.g. in "Pictures" folder, a folder called "Holidays" which in turn contains folders for years or places, which contain those pictures). It's bad practise to store files or folders on the Desktop as this will reduce computer performance (Desktop folder is refreshed frequently) & it's all too easy to accidentally delete something by mistake! In addition, if you fill the Desktop you won't even be able to see new items, let alone open them! File names are in two parts, name & extension, separated by a dot/period (e.g. letter.doc). Linux keeps a list of file extensions & the programs associated with them (e.g. ".doc" might be linked to LibreOffice Writer or whichever word processor you have installed). Changing or removing the file extension will prevent Linux correctly identifying the type & so it won't be able open the file! Like in Windows & macOS, user folders (e.g. documents, pictures, etc) are stored in the user folder (we always use the same username, "Owner"), which itself is in the "Home" folder. You should see an icon on the desktop, a shortcut on Cairo Dock (if present, the program launcher that appears at the bottom of the screen) & maybe another on the start menu.





24. If possible, try to position your computer screen at or above eye level as holding your head up, rather than looking down, causes the body to release norepinephrine (a chemical messenger from your central nervous system & a stress hormone released from adrenal glands) to keep you in a wakeful/alert state. If you feel tired, your eyes start to close & your chin drops, but physically just tilting your head back & looking up for 10-15 seconds triggers the brain to put you into an alert state! However, you should take rest breaks every few hours anyway.



updated: 20220528

25. Google themselves say they're NOT a search engine(!) & haven't been one for many years - they call themselves a 'content provider', displaying mostly sponsored links. You'll often see the "did you mean..." message. However, virus writers & scammers pay Google for links to malicious websites, so check the link looks genuine before clicking it. The results you get from Google searches are filtered based on your previous searches & whatever other information they have 'stolen' from you (this is known as a 'filter bubble') to show the results they can make the most advertising revenue from! They prioritise results to show their own companies or services first, then others with adverts & eventually, whatever is left that matches your profile. Of the top 1 million websites, 75% have Google tracking embedded to record & sell your data! Another person, using exactly the same search criteria on Google, even at exactly the same time & even in private/incognito mode, can be presented with wildly different results as they're based on that person's filter bubble! For example, one's browsing & search history for medical, political, religious, etc matters are likely to only show what you want & expect to see as that's what your profile contains, so you won't see any opposing views to get the other side of an argument. Also, people against (for example) vaccines, will see results supporting their beliefs & people for vaccines will see the opposite, in both cases reinforcing their beliefs, 'proving' they're both right! Do exactly the same search on Yahoo, Bing (both filter, but not to the extent Google does) & DuckDuckGo (ZERO filtering) & you'll find substantially more applicable hits, which are also far safer (less scams) & you'll be better informed! Since DuckDuckGo record & track nothing (so every search is a 'first' search), have options for selectable country, can omit adult sites & search by date/time, they are the recommended choice (privacy first!). Much of the information on the internet is either wrong (e.g. there's lots of conspiracy theories & 'fake news') or out-of-date (therefore, technically, still wrong!), so finding current & accurate information is made much easier with DuckDuckGo!



updated: 20230310

26. 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 getting infected or being conned/scammed, follow one simple rule: if something doesn't look right, or it just seems suspicious, then it most likely isn't safe, so don't click on it!



27. The world's greatest internet threat is the rise of ransomware infections - these encrypt all your data files & then demand £100's (sometimes £1,000's & for corporations, often £1,000,000's!) payment within a short time to decrypt them else they are permanently lost or released/sold on the internet! They are mostly distributed by email & malicious websites (often accessed by Google 'search' or malvertising (fake adverts)). **ALWAYS backup important files & make sure ALL installed software is kept up-to-date.**



28. Before clicking on a link to goto a website or downloading ANY software, check the link on the browser status bar matches a 'likely' address... look for "/" at the end of the web address & before a web page as 'phishing' sites will often use misspellings of well known web addresses or have extra text on the end of the address before the "/" (e.g. www.bbc.co.uk/radio2/guide (this website doesn't exist, it's just an example of how one should look!) would be ok, but www.bbc.co.uk.radio2/guide would not be!). When installing, select setup/custom/options/advanced/etc to untick/exclude unwanted settings or other included software. These are common methods for how adware/malware gets installed.



updated: 20230310

29. When signing into a website (e.g. email, banking, shopping, etc), if website says email address or password are incorrect, this means, however sure you were that you'd typed them correctly, you've typed one of them wrong! Although email isn't case sensitive (e.g. FredAndGinger@hotmail.co.uk is ok), passwords are, so carefully check what you're typing & try again. If you've forgotten your password, generally it can be reset if originally, for that website, you supplied a telephone number and/or another email address that you still have access to (they'll text or email you a code or link to confirm you're the account holder) or via security questions you previously setup/selected, so you can change the password. It's a good idea to write down your passwords in a book, in case you forget one. It's often recommended to have different secure/long passwords for every website, but in practice this is pointless, so it's fine to use the same, easy-to-remember password for any non-critical websites (not email or financial) & then secure/long just for those that warrant it.



30. Secure websites should show a padlock symbol before website address in address bar of web browser, else you might be on a 'phishing' website, masquerading as legitimate & trying to steal your login credentials! It's good practice to use strong passwords (i.e. mix of upper & lower case letters with numbers &/or symbols), but most people would find them hard to remember, so either use a password manager or its built-in to most web browsers to store them or, write them in a book & store that safely not next to computer (if someone break's into your house, they're more likely to take your computer than your passwords book!). For non-secure websites (i.e. requiring no personal or bank/card details), you could just use the same email & password for all as there's no financial implications. For an easy way to remember long passwords, use a phrase or a line from a song or poem you know well, so aren't likely to forget. To check if your email address has been involved in a data breach, goto: haveibeenpwned.com





31. We've had a lot of customers tell us they've had a message on screen telling them they're infected & asking them to call a 'support number' who try to sell them a bogus support contract! Similarly, customers who've been telephoned, often saying it's Microsoft, BT or even Apple (which is odd as they're market share is negligible!) & claiming to have detected infections or problems on their computer & asking to allow access - which they will use to upload programs or infections to support their claims. These are just scams & should be ignored! Another common scam is sent via email, claiming they have incriminating evidence against you (for something you haven't done!) or saying they've 'hacked' your computer or router(!) & downloaded your data & threaten to send it to people in your address book (which they also don't have!)! The pre-internet letter claiming a millionaire had died & if you allow them to transfer his money to your bank account, so the government can't take it, you'd get a commission, is now arriving as an email - often containing deliberate spelling mistakes as the people who don't notice must be of lower intellect(!) & so are more likely to fall for offer! Scams & frauds account for 52% of reports to police forces nationally & are on the rise, often with scammers targeting the most vulnerable in our society. If you (or someone you know) receives a call from someone claiming to be from your bank or a police officer, verify who you are speaking to. Ask for the company name, their name, telephone number & extension & check online (free) or via Directory Enquiries (unfortunately, this isn't a free call) that the telephone number is correct for the company & then say you'll call them back. If they're genuine, they won't mind the confirmation check & after you telephone them, they will call you back again, so you're not paying for the call. Don't share personal information over the phone or worse, on the internet (especially on social media). After a telephone call, if the caller doesn't drop the line at their end, you're still connected, so try calling another number first (e.g. a friend) to confirm the line has properly disconnected (or wait a few minutes & hope they give up & drop the line, or use a different telephone). Your bank or the police will NEVER ask for your PIN or bank card, they'll NEVER send a courier to your home to collect your card, money or any other valuables & the police will NOT ask you to withdraw money from your account or purchase other valuables. Don't share intimate videos or images online with someone you don't know. Be wary about who you accept invitations from on social media & make sure your privacy settings are set so only people you know can view your account. Identity theft involves the misuse of someone's personal details in order to commit a crime. Your details are valuable to fraudsters who will use various tactics to gain personal & financial information from victims that later can be used to open bank accounts, apply for loans, car insurance & for fines. If you throw out sensitive documents (e.g. financial, medical, etc), make sure to shred them first. Check your bank statement regularly &, if you still get sent paper statements, chase up any you didn't receive, in case they've been intercepted, in which case contact the bank &, if necessary, their fraud department. These scams often costs £100's or even £1000's! If you've already been a victim of any of these scams, don't respond to their demands, contact the social media platform (they'll have a scam reporting system in place), the police & report it to your bank - you've been robbed! If something looks or sounds too good to be true, then it probably isn't!



updated: 20230107

32. Deleting data files or uninstalling programs which are not always running in the background, will free up disc space, but will have zero impact on computer performance, unless disc was almost full with only megabytes of available space. Manually deleting (rather than uninstalling) programs is liable to make Linux (& Windows & macOS) unstable & can even prevent booting! Don't set any data backup to save to the same drive (as completely pointless in the event of drive failure!) & limit the number system snapshots (e.g. via TimeShift) to no more than 3 (can restore entire system (Linux & programs) in the event of corruption). Removing unneeded programs which are running at startup will improve performance.



updated: 20230728

33. Computers can playback CD, DVD, BD, etc & audio/video files (proving you have appropriate hardware & software) to the connected speakers/monitor, which can be internal (as in a notebook/laptop/netbook) or external (as on a PC) & even to multiple screens (e.g. notebook to TV)... Increasingly, devices are supporting WiDi (Wireless Display) output to compatible screens (mostly smart TVs), often going via an internet connection using your router. This is known as 'casting', 'screen mirroring' or 'streaming'. Quality of playback depends not just speed of computer, but also WiFi signal strength & internet speed. Non-smart TVs can use a 'cast' device such as Google Chromecast or Amazon Fire Stick (MUCH better & cheaper!) & these also allow installing 'apps' like BBC iPlayer. Casting output can also be achieved by software (e.g. built-in to Opera web browser). Setup requires 'pairing' (like with Bluetooth) but once done, compatible computers, phones, tablets, etc can display any output on another (often bigger) screen.



updated: 20230310

34. 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 (HDD) & solid state drives (SSD) fail - no exceptions! Make copies on external hard disc, USB flash drives (not ideal, as easy to lose or break) or online storage, but, ideally, not optical (e.g. CD, DVD, BD, etc) discs (short life span & unreliable). DropBox (2GB free), pCloud (10GB free), Mega (20GB free), OneDrive (5GB free) or Google Drive (15GB free) (those last 2 via a 3rd party app) are all recommended online backup options, but you'll need to pay if you need more storage space. Due to the potential for a ransomware infection (highly unlikely in Linux!) to encrypt any & all files it can access, it's CRITICAL to NOT leave your backup media (i.e. USB flash or external drive) permanently connected, else that too will be encrypted & ALL your data lost (you could also knock, drop or break it too)! Only connect the backup drive as & when needed & eject (right click icon to safely finish writing any updates stored in the cache) & remove after use. We install "Deja Dup" which is an easy to use file & disc backup program. An often repeated comment is, "I don't know how to do backups" - then ask, research or learn how as without a backup, you WILL lose all your precious files WHEN something goes wrong! Murphy's Law ("If anything can go wrong, it will") doesn't mean that every possible failure will happen to you because you're unlucky(!), it means that, given enough time, things will break, mechanisms will fail, bugs will surface. We use electrical anti-surge protectors because, while rare, spikes in power can have catastrophic results & cars have airbags because, even though you hope to never use them, they might save you from one of the many things that can go wrong in a collision. **MAKE REGULAR BACKUPS, MAKE REGULAR BACKUPS, MAKE REGULAR BACKUPS**, it can't be said & stressed enough!!



updated: 20230729



35. To photocopy something, you need a scanner & a printer & it's common nowadays these are combined into one unit. Most often, you can just lift the scanner lid, place the item on the scanner (make sure to line it up), put the lid down & then press either the black & white or colour scan button & it'll do the job. However, if you want to scan a picture or document into Linux (e.g. to store, edit, email, etc), then you need to use software & the most popular & easiest to use is X-SANE (included in our *CornerStone Software Suite*). When run, it'll prompt to select scanner & then show various windows with that'll display information about anything scanned. You can select settings such as: *Type* (e.g. document, picture, etc), *Resolution* (measured as Dots Per Inch (DPI) - higher is better quality, but bigger file size, *Colour*, *Grey Scale* or *Line Art* (just black or white, no shades), folder & file name, format (e.g. JPG, PDF, etc), etc. Click *Preview* for a quick check to see if you've lined it up ok & then *Scan*. After complete, a file will be saved in the specified format, in the specified folder, leaving you ready to remove that item from the scanner & put the next one in to *Preview & Scan*. Some printer/scanner makes (e.g. Canon) have their own software, but it's common it's run from Terminal - if so, either create a shortcut to that or just use X-SANE.



updated: 20220412

36. Whichever office suite you install/use (e.g. LibreOffice, Microsoft Office (via Wine), WPS Office, etc), they all share, to varying degrees, common layout (generally configurable & some support different 'themes'), functions & short-cut keys, so mostly, the way you do something in one is very similar (or exactly the same!) as another. Menus often show the short-cut keys next to an option & if you learn these, over time you'll find that's much quicker than using just the mouse, menus or icons:

To highlight text, use either mouse with left button held or shift+cursor keys (optionally with Home (beginning of line), End (end of line), PageUp (previous page), PageDown (next page), Ctrl+Home (to start of document), Ctrl+End (to end of document))

key	function	why that key
Ctrl+A	to select all text	first letter of ALL
Ctrl+C	to mark a highlighted area for copying	first letter of COPY
Ctrl+X	to mark a highlighted area for cutting/moving	X looks like scissors (cut)
Ctrl+V	to paste a marked area for copying or moving	next key on keyboard!
Ctrl+L	justifies text to the left (current paragraph or highlighted text)	first letter of LEFT
Ctrl+R	justifies text to the right (current paragraph or highlighted text)	first letter of RIGHT
Ctrl+E	centre align text (current paragraph or highlighted text)	last letter of CENTRE
Ctrl+J	left & right justifies text (like in books) (current paragraph or highlighted text)	first letter of JUSTIFY
Ctrl+B	toggle bold on/off	first letter of BOLD
Ctrl+I	toggle italics on/off	first letter of ITALICS
Ctrl+U	toggle underline on/off	first letter of UNDERLINE
Ctrl+D	select font & character spacing	next key on keyboard to F
Ctrl+N	create new document	first letter of NEW
Ctrl+S	save document - if already has a filename, else prompt first for filename	first letter of SAVE
Ctrl+Z	undo the last change - this can often undo back to start of creating/editing file	first letter of ZAP!
Ctrl+Y	redo last undone change - this can redo back to last change made	previous letter in alphabet to Z
Ctrl+P	print dialogue box to check correct printer selected & specify copies, which pages, etc	first letter of PRINT
Ctrl+F	find - to locate next occurrence of entered text	first letter of FIND
Ctrl+G	goto (move cursor) to specified page/line/paragraph/etc	first letter of GOTO
Ctrl+H	find & optionally replace next occurrence of entered text	next (+1) key on keyboard
Ctrl+O	open dialogue box to browse drive(s) & folder(s) to locate file to edit	first letter of OPEN
Ctrl+W	close current document/window - if unsaved changes, prompts first to save or cancel	first letter of WINDOW



updated: 20230804

37. 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 (at least once a year) for dust build up & clean when necessary. Thermal paste (between chip(s) & heatsink(s)) should be replaced if dried out. For PCs, do NOT put them on carpet (unless office/short pile) as that's where dust, dirt, hairs, etc collect & you'll be blocking PSU air intake (now commonly at bottom of modern PCs) causing it to overheat or become less stable. Better to place PC on a (e.g. wooden board) flat surface. Make sure the case has good air flow (dependant on specification of components as 'high-end' CPU & graphics or more drives will generate more heat) - fan(s) at front bringing in fresh air & at back removing & if space available, ideally side fan(s) blowing in & top extracting) else the CPU, graphics & even some SSDs will be throttled to keep cooler, losing performance! If portable computers have air vents on base then they MUST be used on a flat surface to limit overheating. If they contain mechanical/hard disc (rather than solid state) drive(s), then they MUST be used on a steady surface to limit drive damage - movement, while powered, causes drive heads to hit disc surface (think of them like a record player), damaging disc! It could stop booting up or you could lose files! Air vents or HDD mean they're a 'notebook' NOT 'laptop' & MUST be used accordingly (it's irrelevant what you call them, but it matters how you use them!). Since batteries are for portable use, after charging (ideally, not more than 80% & don't let go lower than 5%, which can double the battery life expectancy!), remove when mains powered (switch off first!) else computer will actually be reducing battery capacity! Most modern portable computers have the battery on the inside, so can't easily be removed (& may not work if it was or would lose settings (e.g. date, time, etc)), meaning it'll constantly be killing it, reducing its capacity! Linux only reports charge level (some have extended details listing original, current & wear of battery) & 100% of nothing, is still nothing! If removing battery, put it back in to top it up every few months to keep it 'alive'.



updated: 20220804

38. CornerStone Computer Centre sell inkjet cartridges & laser toner at the lowest prices (by far!) in the area. We keep large stocks of Epson, Brother, Canon & HP individual inkjet inks. Printers with only two cartridges, with all the colours in one cartridge, should be avoided... when you run out of one colour, you've lost the others as they're in the same cartridge! Inks for these printers are generally 10x more expensive to buy than individual inks (commonly £2-£4), they put a lot less ink in them & losing 2/3 when only out of 1 colour means the effective cost per page can be 100x more expensive! NEVER buy a two cartridge inkjet printer &, if you already have one, when the inks run out, just buy a new printer (see our website for printer recommendations) as it'll save you a LOT of money on the running costs! Although significantly more expensive to buy (entry level starts around £150, but can be many £100s!), you can now get printers with ink 'reservoirs' instead of using ink cartridges (e.g. Epson EcoTank) - these are just 'topped up' from bottles of ink & can have page yields in the 1000s or even 10000s. Running costs are a tiny fraction of those with cartridges, so, if you print a lot, you'd soon save a lot too.



updated: 20230804



Troubleshooting:

There is substantial online support for all versions of Linux... just check their websites & forums.

Linux is case sensitive for filenames & parameters, so, for example, "S" is not the same as "s".

(all commands are entered via Terminal)

Different Linux distro's & desktops have different default software (e.g. to edit a file could be *nano*, *pluma*, *xed*, etc (type *edit* on menu to identify which yours uses) - for simplicity, "edit" will be used below to mean the text editor, whichever it may be).

Debian/Ubuntu based Linux (e.g. Debian, Ubuntu, Zorin, Mint, Bodhi, Emmabuntüs, Sparky, etc) - DEB packages:

Debian	debian.org	help: debian.org/doc	wiki: wiki.debian.org
Ubuntu	ubuntu.com	help: ubuntuforums.org or askubuntu.com	
Zorin	zorinos.com	help: help.zorin.com	
Mint	linuxmint.com	help: forums.linuxmint.com	wiki: linuxmint.com/documentation.php
Bodhi	bodhilinux.com	help: bodhilinux.boards.net	wiki: bodhilinux.com/w/wiki
Emmabuntüs	emmabuntus.org	help: forum.emmabuntus.org	
Sparky	sparkylinux.org	help: forum.sparkylinux.org	wiki: wiki.sparkylinux.org

<code>sudo apt clean</code>	remove cached packages
<code>sudo apt clean all</code>	remove downloaded packages
<code>sudo apt autoclean</code>	remove partial packages
<code>sudo apt autoremove</code>	removes dependencies after package removed
<code>sudo rm -f /var/log/*gz</code>	purge log files older than a week or two (frees space)
<code>sudo journalctl --vacuum-time=3d</code>	purge <i>systemd</i> journal logs older than 3 days (frees space)
<code>rm -rf ~/.cache/thumbnails/*</code>	purge thumbnail cache (frees space)
<code>sudo apt install --fix-broken</code>	resolve broken dependencies
<code>sudo dpkg --configure -a</code>	configure interrupted packages
<code>sudo apt update</code>	refresh package list
<code>sudo apt upgrade</code>	upgrade packages with current release
<code>sudo apt dist-upgrade</code>	upgrade packages, removing obsolete & adding new dependencies
<code>sudo apt install update-manager-core</code>	install update manager (if not already present)
<code>sudo do-release-upgrade -d</code>	upgrade to newer LTS version, optionally forced if no point release available
<code>sudo apt install {program_name}</code>	install named program
<code>sudo apt remove {program_name}</code>	uninstall named program

Synaptic Package Manager is a quick, easy to use, user-friendly system for installing updates & upgrades:

<code>Reload</code>	refresh package list	if not booting to desktop,
<code>Mark All Upgrades, Apply</code>	update	login via Terminal &
<code>search/select kernel, Apply</code>	upgrade (old kernels kept for compatibility)	enter <i>synaptic</i> to run

If broken packages reported:

Click *Edit*, *Fix broken packages* & retry or, if that doesn't work: *Status*, select *Broken*, *Remove* broken packages

To install downloaded *.tar.gz* software: right-click file, *extract here* & note folder. 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*)

If error messages about unsigned entries when trying to install or update software, remove the listed file & retry: `sudo rm /path/filename`

To upgrade Mint: *Update Manager*, *Refresh*, update *mint-upgrade-info* & *mintupgrade*, *Edit*, *Upgrade* (NOTE: new LTS versions will need reinstall)

To upgrade *Linux Mint Debian Edition* (LMDE) 3 to 4: community.linuxmint.com/tutorial/view/2475 (10x quicker to just reinstall!)

To upgrade *LMDE* 4 to 5: *apt update*, *apt install mintupgrade*, *sudo mintupgrade*, after (takes hours!): *apt remove mintupgrade*, *sudo reboot*

By default, the 'swap file' is used when memory reaches 40% usage - this slows computer, so to set limit to 90%: `sudo edit /etc/sysctl.conf` add line on end: `vm.swappiness=10` save & reboot. To check: `cat /proc/sys/vm/swappiness`

To easily upgrade the Linux kernel, there's free apps available:

<code>sudo add-apt-repository ppa:teejee2008/ppa</code>	add publisher's repository
<code>sudo apt update</code>	update system first
<code>sudo apt install ukuu</code>	install, run from menu, select kernel (LTS recommended), install & reboot
or	
<code>sudo add-apt-repository -y ppa:cappelikan/ppa</code>	add publisher's repository
<code>sudo apt update</code>	update system first
<code>sudo apt install mainline</code>	install, run from menu, select kernel (LTS recommended), install & reboot

To upgrade Linux kernel in recent versions of Linux Mint: *Update Manager*, *View*, *Linux Kernels*, select a supported kernel, *Install*.

To automatically fix non-booting Linux (assuming corrupted boot manager), boot from live CD/DVD/USB, connect to internet & run Terminal:

<code>sudo fdisk -l</code>	make note of Linux boot partition, e.g. sda1
<code>sudo apt-add-repository ppa:yannubuntu/boot-repair</code>	add repository for an automated boot repair program
<code>sudo apt update</code>	update system first
<code>sudo apt install -y boot-repair</code>	install boot repair program
<code>boot-repair</code>	run boot repair program & follow instructions (can address various issues)

To manually fix non-booting Linux (assuming corrupted boot manager), boot from live CD/DVD/USB, connect to internet & run Terminal:

<code>sudo fdisk -l</code>	make note of Linux boot partition, e.g. sda1
<code>sudo mkdir /mnt/temp</code>	create temporary mount folder
<code>sudo mount /dev/sdX# /mnt/temp</code>	mount temporary folder, changing X# for boot partition, e.g. sda1
<code>sudo grub-install --boot-directory=/mnt/temp/boot /dev/sdX#</code>	reinstall GRUB boot manager, changing X# for boot partition, e.g. sda1

To change to installed 'root' account to fix issues from live CD/DVD/USB, connect to internet & run Terminal:

<code>sudo fdisk -l</code>	make note of Linux boot partition, e.g. sda1
<code>sudo mkdir /mnt/temp</code>	create temporary mount folder
<code>sudo mount /dev/sdX# /mnt/temp</code>	mount temporary folder, changing X# for boot partition, e.g. sda1
<code>for i in /dev /dev/pts /proc /sys /run; do sudo mount -B \$i /mnt/temp\$i; done</code>	
<code>sudo cp /etc/resolv.conf /mnt/temp/etc/resolv.conf</code>	
<code>sudo chroot /mnt/temp</code>	mount the required folders to work on installed version

Commands can now be entered as if working as *root* on installed version, e.g. updates or repairs from above & then after, to unmount, type: `for i in /dev /dev/pts /proc /sys /run; do sudo umount /mnt/temp$i ; done`

updated: 20240201



Arch based Linux (e.g. Arch, Manjaro, Garuda, RebornOS, EndeavourOS, BlueStar, etc):

Arch	archlinux.org	help: bbs.archlinux.org	wiki: wiki.archlinux.org	
Manjaro	manjaro.org	help: forum.manjaro.org	wiki: wiki.manjaro.org	('live' password="manjaro")
Garuda	garudalinux.org	help: forum.garudalinux.org	wiki: wiki.garudalinux.org	('live' password="garuda")
RebornOS	rebornos.org	help: rebornos.discourse.grou		
EndeavourOS	endeavouros.com	help: forum.endeavouros.com		

The following assumes Manjaro, but is (mostly) applicable for any Arch based Linux (also assumes *Package Manager* is installed)

Make sure the date & time are correct before trying to install any software or updates else that will cause validation to fail. It's good practise to refresh software mirrors first, to ensure you are using only active servers (some might be 'down' for maintenance, so you'd get nothing from them!) & have the fastest downloads: Package Manager, menu (≡), Preferences, Use mirrors from=UK only (worldwide takes ages!), Refresh Mirrors. Also, remove orphaned packages (where previous update means package is no longer used): Installed, Orphans, Remove All, Apply (repeat if necessary) & lastly: menu (≡), Refresh databases, to make sure you have the current list of available updates.

<code>sudo rm /var/lib/pacman/db.lck</code>	removes program update lock	(in case updates interrupted)
<code>sudo rm --fv /var/tmp/pamac/dbs/db.lck</code>	removes program update lock	(in case updates interrupted)
<code>sudo pacman-mirrors -c United_Kingdom</code>	use just UK software mirrors	(takes only seconds to refresh)
<code>sudo pacman-mirrors -c all</code>	reset software mirrors to worldwide	(takes a LONG time to refresh)
<code>sudo pacman-mirrors -f0</code>	refresh & sort software mirrors by online/speed	(update mirror lists)
<code>sudo pacman-mirrors -fx</code>	refresh & sort, but limit the number of mirrors to x	(update mirror lists)
<code>sudo pacman-mirrors --api --set-branch branch</code>	switch to <i>stable</i> , <i>testing</i> or <i>unstable</i> (unstable recommended if using AUR)	
<code>sudo pacman-mirrors -G</code>	display which branch is currently active	

All software has a digital 'signature' to verify it hasn't been corrupted or tampered with. The signatures are stored in 'keyrings', which, if out-of-date, missing or corrupted (usually means faulty drive or RAM), will need to be refreshed or reinstalled. Not installing updates regularly (ideally, soon after you're prompted) can lead to signatures or keys being 'out-of-sync', which can/will prevent later updates. If keys expire before doing an update, you may see 'package-name: signature from "packager" is unknown trust' message, which means packager's key in 'package-name' is not present and/or not trusted in local pacman-key db database. You may need to wait for a newer ISO to be released & reinstall your system with that ISO! It's also possible your ISP blocks the port used to import PGP keys (you might be able to get around this by using a VPN). Make sure you have enough free disc space to install updates & if not, you'll need to make more (see below or use 'BleachBit' app). Make sure system date & time are correct before starting, else updates will fail:

<code>sudo journalctl --vacuum-size=50M</code>	Remove old entries from journal (reduce size to 50M)
<code>sudo rm -fr /etc/pacman.d/gnupg</code>	remove old/broken keys
<code>sudo rm -fr /root/.gnupg/</code>	remove old/broken keys
<code>sudo rm -fr /usr/share/pacman/keyrings</code>	remove old/broken keys
<code>sudo rm -f /var/lib/pacman/sync/*</code>	remove faulty databases
<code>sudo rm -v /var/cache/pacman/pkg/*.sig</code>	remove signatures
<code>sudo rm -v /var/cache/pacman/pkg/*.part</code>	remove partial downloaded packages
<code>sudo paccache -ruk0</code>	cleanup pacman cache (remove uninstalled packages)
<code>sudo pacman -Scc</code>	remove cached packages from aborted update(s)
<code>sudo pacman -Rsn \$(pacman -Qdtq)</code>	remove orphaned packages
<code>sudo pacman-mirrors -c United_Kingdom</code>	set mirrors to UK only
<code>sudo pacman-mirrors -f0</code>	refresh & sort mirrors by online/speed
<code>sudo pacman-key --init</code>	initialize files & folders for keys
<code>sudo pacman -Sy gnupg archlinux-keyring manjaro-keyring</code>	synchronize repositories & reinstall latest keyrings
<code>sudo pacman-key --populate archlinux manjaro</code>	load signature keys
<code>sudo pacman-key --refresh-keys</code>	refresh signature keys
<code>sudo gpg --refresh-keys</code>	refresh signature keys
<code>sudo pacman -Su</code>	install updates
<code>pamac upgrade -a</code>	rebuild all AUR packages (if using) after successful update

To add an update program to the start menu (can also be run from Terminal: manjaro-update):

```
sudo pacman -Syu base-devel git
git clone https://github.com/puxplaying/manjaro-update.git
cd manjaro-update
makepkg -srcl
```

To download & install just the keyrings (afterwards, retry updating via Package Manager):

<code>sudo rm -r /etc/pacman.d/gnupg</code>	remove old/broken keys
<code>sudo pacman-key --init</code>	initialize files & folders for keys
<code>mkdir -pv \$HOME/.cache/pkg/</code>	create a temporary folder to receive the keyrings
<code>sudo pacman -Syw archlinux-keyring manjaro-keyring --cachedir \$HOME/.cache/pkg/</code>	download the current keyrings to the temporary folder
<code>rm -f \$HOME/.cache/pkg/*.sig</code>	remove signatures
<code>sudo pacman -U \$HOME/.cache/pkg/*.tar.zst</code>	install downloaded keyrings
<code>sudo pacman -U \$HOME/.cache/pkg/*.tar.xz</code>	install downloaded keyrings
<code>sudo pacman -Scc</code>	remove cached packages from aborted update(s)
<code>sudo rm -Rf \$HOME/.cache/pkg/</code>	remove temporary files & folder

To update packages, including AUR:

```
pamac upgrade --enable-downgrade --aur --devel
```

To manually install current Manjaro & Arch keyrings & then run updates:

Browse to: https://mirror.easyname.at/manjaro/pool/overlay	look for the current manjaro-keyring & note the date in the filename
Browse to: https://mirror.easyname.at/manjaro/pool/sync	look for the current archlinux-keyring & note the date in the filename
<code>sudo pacman -U https://mirror.easyname.at/manjaro/pool/overlay/manjaro-keyring-yyyyymmdd-x-any.pkg.tar.xz</code>	(change date accordingly)
<code>sudo pacman -U https://mirror.easyname.at/manjaro/pool/sync/archlinux-keyring-yyyyymmdd-x-any.pkg.tar.xz</code>	(change date accordingly)
<code>sudo rm -f /var/lib/pacman/sync/*</code>	remove faulty databases
<code>sudo pacman -Syu</code>	synchronise repositories & install updates

You could also try to change the key server address:

```
edit /etc/pacman.d/gnupg/gpg.conf & change keyserver line to: keyserver hkp://keyserver.ubuntu.com & after, reboot & retry updates
```

Lastly, temporarily disable checking: edit `/etc/pacman.conf`, set each `xxxSigLevel=Never`, reboot & retry updates. After, restore previous values.

To bypass signature or keyring issues, install already downloaded packages (where packages have been downloaded, but an issue/conflict prevented installing): Package Manager, menu (≡), Install Local Packages, browse to `/var/cache/pacman/pkg`, select package to install.



If not booting to desktop or missing/corrupted programs, boot 'live' DVD/USB, run Terminal, type: `manjaro-chroot -a, sudo pacman -Syyu` if asked to delete an existing settings file: `sudo rm path/name` or if conflicting package reported: `sudo pacman -R package-name & retry`.

Power loss before shutdown can corrupt boot: at boot menu (hold shift if not displayed) select `'fallback-boo'`, this usually allows system to boot (if not, press `e` & add `3` to boot options near `quiet`, which boots to Terminal, or boot 'live' DVD/USB & change root as above) & then: `ls /etc/mkinitcpio.d` (note newest kernel). If none present: `mhwd-kernel -l` (shows available kernels), `sudo pacman -S linuxXXX` (e.g. linux515) to install kernel & rebuild boot, otherwise, to reset boot process: `sudo mkinitcpio -p linux.kernal` (e.g. linux515), update: `sudo update-grub`

To reinstall all native packages: `sudo pacman -Qnd | pacman -S -` can fix missing file(s) error(s) during boot

To reinstall pamac package manager: `sudo pacman -S pamac-gtk` can fix missing update indicator

A corrupted or incompatible graphics driver can also prevent booting to desktop: boot to Terminal, as per above:

`mhwd -li` to list which graphics driver is installed

`sudo mhwd -r pci name-of-graphics-driver -f` to remove driver (replace `name-of-graphics-driver` accordingly)

`sudo mhwd -a pci free 0300 -f` to install open-source driver (to restart computer after, type: `reboot`)

If keyboard or mouse stop working (due to corruption/conflicting software), boot as per 'power loss' above & reinstall drivers: to find which: `pacman -Q | grep xf86-input` e.g. `sudo pacman -S xf86-input-keyboard` or `xf86-input-mouse` or `xf86-input-evdev` or `xf86-input-libinput`

If using Apple computer with Broadcom WiFi & not connecting, uninstall `linuxXX-broadcom-wl` (where XX is kernel version (e.g. 515)) & restart

If Cinnamon desktop icons not showing: `sudo rm /home/username/.config/nemo/desktop-metadata` (then logoff/on)

Use Manjaro Settings Manager to add or remove keyboard/language/spelling preferences, new/old kernels (ideally LTS), users & device drivers

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: (to apply changes: `/usr/bin/cp -rf /etc/skel/. ~`) (logoff & select choice at login)

MATE (uses ~125MB): `sudo pacman -S mate mate-extra network-manager-applet dconf-editor manjaro-mate-settings manjaro-settings-manager`

Cinnamon (uses ~175MB): `sudo pacman -S cinnamon cinnamon-wallpapers cinnamon-sounds gnome-terminal parcellite`

XFCE (uses ~100MB): `sudo pacman -S xfce4 xfce4-gtk3 xfce4-goodies xfce4-terminal network-manager-applet xfce4-notifyd-gtk3 xfce4-whiskermenu-plugin-gtk3 tumbler engrampa manjaro-xfce-settings manjaro-settings-manager`

To install downloaded software: `pacman -U /folder/package-name.pkg.tar.xz` (replace `folder & package name` to where & what downloaded)

To add shortcuts/applets/etc to panel (bar with clock, volume, etc), right click, select `add to panel`, enter a title & select program (e.g. Opera web browser) or create custom launcher & enter command (e.g. update notifier: `sh -c "GDK_BACKEND=x11 pamac-tray"`), both with optional comment.

If getting "sparse file not allowed" message at boot (Grub isn't recognizing BTRFS format), you can just skip it or, to remove message: `sudo grub-editenv create` (64bit only) `sudo edit /etc/default/grub & set/check GRUB_SAVEDEFAULT=false` `sudo update-grub` `reboot`

If missing Printer/Print Settings (in Control Centre), install `Print Settings` & recheck & if still not working, reinstall `manjaro-printer`.

If unable to print & getting message saying service not started, type:

`sudo systemctl enable --now cups.service` `sudo systemctl enable --now cups.socket` `sudo systemctl enable --now cups.path`

To change keyboard layout: menu, `Keyboard, Layouts, Add...`, select country/variant or language/variant, Add. This will display a layout selector in taskbar (multiple keyboards/layouts can be supported - click to select which to use now). To have one only, remove any others.

By default, the 'swap file' is used when memory reaches 40% usage - this slows computer, so to set limit to 90%: `sudo edit /etc/sysctl.d/100-manjaro.conf` add line on end: `vm.swappiness=10` save & reboot. To check: `cat /proc/sys/vm/swappiness`

To add system-wide spell checking, install: `sudo pacman -S aspell-en libmythes mythes-en languagetool`

To add boot/shutdown information/animation: install `bootsplash-manager`, run & select theme (more themes available via `package manager`)

Snap & Flatpak are self-contained software, including all dependents install (can be via Package Manager), restart, then enable both in:

`sudo pacman -S libpamac-snap-plugin libpamac-flatpak-plugin` Package Manager: menu (≡), Preferences, Third Party

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Red Hat/Mandriva based Linux (e.g. PCLinux, OpenSUSE, Red Hat, Fedora, CentOS, etc) - RPM packages:

Red Hat	redhat.com	help: access.redhat.com/products	(commercial product, NOT free)
PCLinux	pclinuxos.com	help: pclinuxos.com/forum	wiki: pclinuxoshelp.com
Fedora	getfedora.org	help: docs.fedoraproject.org	wiki: fedoraproject.org/wiki/Fedora_Project_Wiki
CentOS	centos.org	help: docs.centos.org	wiki: wiki.centos.org
OpenSUSE	opensuse.org	help: forums.opensuse.org	wiki: en.opensuse.org

<code>sudo dnf upgrade --refresh</code>	refresh packages	(Fedora 21+ & some other distros)
<code>sudo dnf install dnf-plugin-system-upgrade</code>	install system upgrade plugin	
<code>sudo dnf system-upgrade download --refresh --releasever=xx --allowrasing</code>	download upgrade packages where <i>xx</i> is upgrade version & note broken packages being removed so you can reinstall them later	
<code>sudo dnf clean packages</code>	remove deprecated packages	
<code>sudo dnf system-upgrade reboot</code>	upgrade	

Synaptic Package Manager is a quick, easy to use, user-friendly system for installing updates & upgrades:

<code>Reload</code>	refresh package list	can all be done via Synaptic Package Manager
<code>Mark All Upgrades, Apply</code>	update	even if not booting to desktop (login via Terminal & simply
<code>search/select kernel, Apply</code>	upgrade (old kernels kept for compatibility)	enter <i>synaptic</i> to run)

If Synaptic Package Manager not working: *su* to switch to root user & enter root password when prompted, then: (ONLY PCLinux)

<code>apt update</code>	refresh package list	
<code>apt dist-upgrade --fix-missing</code>	upgrade packages {optionally skip missing}	(better to add more mirrors!)

If Synaptic Package Manager corrupted: *su* to switch to root user & enter root password when prompted, then: (ONLY PCLinux)

<code>rm -f /var/lib/rpm/__.db.*</code>	remove the corrupt database	
<code>rpm -vv --rebuilddb</code>	rebuild the database	
<code>dupeclean</code>	remove duplicate packages	
<code>apt clean</code>	remove cached packages	
<code>apt autoclean</code>	remove partial packages	
<code>apt --fix-broken install</code>	remove broken packages. after, retry Synaptic Package Manager	
<code>lock packages</code>	click this in Synaptic Package Manager if reporting 'packages held'	
<code>apt install /folder/package.rpm</code>	manually install downloaded package (-v=verbose, -h=show progress)	
<code>apt update /folder/package.rpm</code>	manually upgrade (removing old version(s)) downloaded package	

To toggle mouse click between single & double click: *Menu, System, Control Centre, File Management, Behaviour* tab (ONLY PCLinux)

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Solus Linux:

Solus Linux:	getsol.us	help: getsol.us/help-center/home
<code>sudo eopkg up</code>	perform a full system update (can also be done via the Software Centre)	
<code>sudo eopkg check grep Broken awk '{print \$4}' xargs sudo eopkg it --reinstall</code>	validate that packages are installed correctly	
<code>sudo eopkg rdb</code>	fix corrupted database, if updates fail & after, retry	
<code>sudo eopkg history</code>	displays update history	
<code>sudo eopkg history -t {number}</code>	rollback update to transaction/operation {number}	

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General Linux troubleshooting: (for issues not covered here, check publisher's website forum) **all commands are entered in Terminal**

If not already present, a 'package manager' (e.g. *Synaptic*) can be installed on most versions of Linux & is a simple means of (un)installing software, even multiple selected programs in one go. However, it can't resolve conflict issues, which are easily addressed via Terminal (see above).

If update issues: Edit, Software Sources, Official Repositories, Main, select fastest; Additional Repositories, untick any preventing updates Maintenance: Fix MergeList problems, Purge residual configuration, Remove duplicate entries

It's possible to use a 32bit printer driver with 64bit Linux:

If distro doesn't have 32bit library as standard, install it.
DEB based: install *lib32stdc++6* for Debian, *ia32-libs* or *lib32z1* for Ubuntu.

RPM based: install *glibc.i686* or *libstdc++.i686* for Fedora 10 or later (*nss-softokn-freebl.i686* dependency is also required).

Install *LPD/LPRng* & *CUPS* driver using the *-force-architecture* option.

If */usr/lib64* directory exists, check whether "*{printer name}filter*" exists under */usr/lib64/cups/filter* & if not, copy from */usr/lib/cups/filter*

Set up printer using *CUPS* via browser: "*localhost:631/printers*"

Linux supports multiple 'work areas' (press *Ctrl+Alt+function key F2-F7* (F7=default)) allowing login to 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 (*reboot*).

To reset login password (NOTE: this is NOT a security issue as direct access to computer is required!): first, turn on computer(!), then for: Manjaro: boot live Manjaro DVD/USB, *manjaro-chroot -a*

Debian/Red Hat based: (hold shift) on boot menu, edit, locate *Linux* line, change *ro* to *rw* & add *init=/bin/bash* to end of line, press *F10* to boot

For Red Hat based, before changing password, you may need to enter: *mount -o remount,rw /* & after: *touch /.autorelabel*

For other versions of Linux, see their website help or forum for how to boot to terminal or live boot & change root.

To change password, type: *passwd username* enter new password twice *exit reboot*

Chromium web browsers (e.g. Opera, Chrome, etc) store website passwords in a 'keyring'... if password forgotten or you want to remove it: *rm -v ~/.local/share/keyrings/*keyring* (upon next run, you'll be prompted for a new password, leave blank & accept unsafe message for none)

If running low on disc space, goto Package Manager, Preferences, Cache & clear cache as, by default, 3 copies are kept (change this to 1 copy!).

If missing icons on menu, try changing the desktop theme (in Appearance) & if ok, change back to see if refreshing has fixed, or if not, change icon theme. Also, oddly, uninstall *Shotwell* & reinstall as it's library file can often cause this issue too, but fixes after reinstalling!

When using a file manager, to browse another drive, goto: */run/media/{user name}/{device name}* or */media/{user name}/{device name}*.

To add truetype fonts, after copying to */usr/share/fonts/ttf* or */usr/share/fonts/truetype* (Linux version specific): *sudo fc-cache -fv*

To ensure documents created in Microsoft Office display correctly, install Microsoft's core fonts: *ttf-mscorefonts-installer*

To enable blocked WiFi: *rkill* list, then *sudo rkill unblock n* (where *n*=adapter number) & after, restart to enable.

To enable TeamViewer service, so it runs at boot time & is always available: *sudo teamviewer --daemon enable*

If getting ownership rights issues on your files, to change ownership on all files in your user folder: *sudo chown -Rc \$USER:\$USER \$HOME*

If getting sound or microphone issues, install *pavucontrol*. This adds *PulseAudio Volume Control* which has more configuration options.

To enable screen panning on low resolution monitors: *xrandr* & note 'screen-name' & 'maximum resolution'; then: *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: *xrandr --output screen-name --scale X.XxY.Y* (e.g. if 1024x600, 1.00x1.28=1024x768). For convenience, add to *startup applications* or create a *desktop launcher*, enter a name & the command: *sh -c "panning-settings && scaling-settings"* (replacing as applicable).

To enable NumLock after login: install *numlockx*, add to *startup applications*: *sh -c "sleep 10 && numlockx on"* (change *on* to *off* for disable).

To enable (-#)/disable (+#) auto login in MATE, Cinnamon & XFCE (LightDM): *sudo edit /etc/lightdm/lightdm.conf* find [*SeatDefaults*],

#autologin-user=username, *#autologin-user-timeout=0* (seconds to delay before login), *#user-session=desktop name*

Services control/management: *systemctl enable/disable/status/start/stop/restart name.service* (e.g.: *sudo systemctl enable lightdm.service*)

To list loaded services: *systemctl list-units --type=service --state=enabled/disabled/running* (select) list failed services: *systemctl --failed*

To enable gufw firewall (install, if not present) at startup: *sudo ufw enable && sudo systemctl enable ufw && sudo systemctl start ufw*

To enable disabled networking: *systemctl restart NetworkManager.service*

If you have a solid start drive (SSD), to enable TRIM support (extends life of drive): *sudo systemctl enable fstrim.timer*

General startup info: *systemd-analyze* display process loading times: *systemd-analyze blame* read error logs: *sudo journalctl -p 3 -xb*

To display available disc space: *df -h* list all hardware: *lshw* list USB devices: *lsusb*

check disc (like Windows' CHKDSK): *sudo fsck {-c(check for bad sectors) -v(verbose) -p(no prompts) -f(force check)} {/dev/sdaX(X=drive)}*

Drive MUST be unmounted (*sudo umount /dev/sdaX (X=drive)*) before checking... if boot drive, will need to live boot via DVD/USB first

To list full hardware & system details: *sudo inxi -Fx*

To uninstall wine Windows programs: *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 updates: refresh mirrors & databases (see above) & retry or, enter 'update/upgrade command' (see above) which can prompt to resolve conflicts or, untick the listed program & do the other updates first & retry or, uninstall the listed program, retry & then reinstall program (if still needed) or, clear cached & orphaned packages (see above) & retry.

If hardware/devices are supported/working with open source device drivers, then avoid proprietary drivers as they often cause problems.

Since Broadcom LAN & WiFi do not contain the *firmware* for device drivers to access/use, they're unlikely to be supported without first installing: *b43-firmware*, *b43-firmware-classic* or *b43-firmware-legacy*, for which you may need an external adapter if both are not supported.

If not booting to desktop, could be graphics driver or motherboard incompatibility: on boot menu (hold shift if not displayed at start), press (*E*)*dit* or select *Advanced options*, edit, add *nomodeset* (if graphics issue) or *noapic* (if motherboard issue) to end of *Linux* line, press *F10* to boot & after, if ok, to make permanent: *sudo edit /etc/default/grub*, add the same (*nomodeset* or *noapic*) to *GRUB_CMDLINE_LINUX_DEFAULT*, save & exit, then: *sudo update-grub* & restart to see if booting ok else try updating graphics drivers.

If corrupted GRUB boot loader: *sudo grub-install /dev/sda sudo update-grub sudo reboot*

If corrupted file(s)/folder(s): boot live CD/DVD/USB & run GParted (included with most Linux), select drive & check, then reboot.

When installing an operating system (OS), be it Linux, Windows, macOS, etc, it is good practice to divide disc (HDD or SSD) into separate OS & data partitions & then later, data backup is easier (everything on data partition) & reinstalling doesn't lose data. In Linux, during installation, when prompted for location to install, select manual/other, create new partition table (to wipe existing contents) & use *MBR* for 'legacy' BIOS or *GPT* for 'UEFI', create 'OS' partition (at least 50GB) & mount as '/' with 'boot' flag ticked (if offered), next create 'swap' partition (RAM size + 100MB, if hibernate required, else not needed) & mount as 'swap', then create 'data' partition using the rest of disc & mount as '/home'. Install to OS partition. For UEFI motherboards, disable 'secure boot' in BIOS, create a 512MB FAT32 partition at the start of disc, mount as '/boot/efi' with 'esp' flag ticked (if offered). On older 'legacy' BIOS, it's still possible (& recommended) to have a GPT partition table by creating a 8MB unformatted partition, at the start of disc, with 'bios-grub' flag ticked.

It's possible to add unsupported USB scanner: *lsusb* (note ID numbers), *sudo usermod -a -G scanner \$LOGNAME*, *sudo edit /etc/sane.d/epson** (change for different makes), uncomment (remove "#") from *USB* line in *unknown* section & change IDs to match earlier listed (there will be more than one file to edit & uncomment scanner references), *logout/login*, use *Xsane* to scan.



To start the XScreenSaver daemon at startup: *Startup Applications*. Add. Name: XScreenSaver Command: xscreensaver -no-splash

If getting issues with a program, remove it's settings (usually stored in `.config` in user's *home* folder (press Ctrl+H to show hidden files)) & retry.

To stop programs running at startup: *Startup Applications*, remove `{program_name}` (change `{program_name}` as applicable)

For Snaps, remove shortcut: `/home/{username}/snap/{program_name}/current/{program_name.desktop}`

If notebook/laptop screen is too dark, this means manufacturer has hard-coded BIOS to detect Windows & turn off backlight if not present(!):
 override: `sudo edit /etc/default/grub add acpi_osi=Linux acpi_backlight=vendor to GRUB_CMDLINE_LINUX_DEFAULT= sudo update-grub`

If getting distorted sound, especially with Apple computers, type: `alsamixer`, press F6, select sound card, press Esc to exit & recheck sound.

To add startup sound to MATE: *Startup Applications*, Add, enter a name & comment & Command: `paplay {--volume=0-65535} path/sound_file`
`paplay --list-file-formats` will show which audio formats are currently supported (OGG preferred) & if volume is omitted then will be 100%.
 e.g. `paplay --volume=30000 /usr/share/sounds/cornerstone/startup.ogg`

If VLC doesn't find DVD drive, click on Media, Open Disc & specify `/dev/sr0` as the disc device.

If desktop icons not displayed within KDE desktop: *System Settings*, *Global Theme*, select theme, tick *Use desktop layout from theme*, Apply

On low resolution screens (e.g. 1024x768), press ALT to drag windows with the mouse, if they don't fit in the screen.

If issues with KDE apps (Okular, Gwenview, KStars, etc...), install `kdelibs-bin kdelibs5-data kdelibs5-plugins`

If low on disc space, to find which files/folders are taking the most space (to remove anything unnecessary), install/run: `ncdu` (runs from terminal), Filelight (shows 'pie-chart' graph) or Stacer (complete system optimizer & monitor), if available in your Linux's repo (else you'd either need to add the publisher's repo or use a *snap* or *flatpak*, if available).

Before a downloaded *script* can be run, change *permissions* to executable: `chmod +x script-name.sh` (can also do via right-click file, properties).
 Then to run a script, from within the folder where it's stored: `./script-name.sh` OR `sh script-name.sh` OR `bash script-name.sh`

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There are several useful websites we recommend:

softpedia.com	huge library of software with reviews	tutorialforlinux.com	how to install or setup hardware or software
sourceforge.net	biggest library of open source software	linuxquestions.org	general troubleshooting
easylinuxtipsproject.blogspot.com		easy Linux Mint & Ubuntu tips,	for both beginners & advanced users

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This document gets updated frequently - the latest version is available via our website.

If you have any suggestions, find any errors, paragraphs you thought weren't clearly explained or even topics that aren't covered but you think people would benefit knowing about, please feel free to send your suggestions to: feedback@CornerStone.me.uk