Light Wizards Linux Guide

I was a Unix user before Linux came out, so I know about all the versions of Linux, and have tried out more Distributions over the years than I care to count, and this is just my opinion about Linux, so take it for what it is worth. If you want a stable version of Linux you need to go with a distribution that is based on a Stable repository, and to understand what a repository is, you need to know a few things, and the first thing is that Stable means old and Tested.

Linux has an official site for every part of the system, the Kernel is the core of Linux, and it has its own Repository, and everyone pulls from those repositories, so you have Linux that is the same for all Distributions like the top 3: Arch Linux or Distributions based on it like my favorite Manjaro, and you have Distributions based on Debian like Ubuntu, and OpenSuse, and the reason these distributions are so popular, is because they have stable repositories, but as much as I like Stable, I like New because I am a Computer Programmer, and I want the newest tools, like Qt 6.

If you are coming from Windows, this is your guide, I wrote it for someone who has been a Windows user all their life, and now are ready to jump in, so I will take you from the basics, to the more advance, and then into troubleshooting, and what to do when things break, so I have to pick a Desktop that is good for Windows Users, and Qt is Development Platform that KDE is based on, and who makes the Plasma Desktop, which is the most Windows like experience you will get in Linux.

KDE is short for Konqi Desktop Environment, Konqi is the KDE Mascon and is a Dragon, who lives with Kandalf, who is a Computer Science Wizard.

https://community.kde.org/Konqi

I will talk about the command line first, the reason is simple, you need to document what you are installing, and the best way to do this is to open a file and write it all down. I will cover the top 3 Linux Distributions, the others are similar, but these 3 are all different, but almost all the others are based on these 3, Ubuntu is based on Debian, and are mostly the same, so that covers all the alternative Distributions. The command line is the first thing you need to know about Linux, and if you are coming from Windows, this will be the thing most people do not want to learn, but if you follow my simple advice, you will learn to be a Linux Wizard by learning how to use a Koncole which is a Terminal.

The Light version of being a Linux Wizard is to go to the command line first and ask questions later, you will need to know how to switch from one driver to another if you change hardware, and the first thing you want to learn is how to use Linux without losing your Data, so this is where we will begin.

Linux is setup very different from Windows, the first thing you need to know is that every Distribution has its own default Terminal, so let us talk about Terminals and Desktops. When you first boot up to Linux you will see a boot-up sequence, this starts with Grub which has a set time out limit you can change, this is a file that tells your Desktop loader which versions are available, as well as what Desktops, and versions might confuse you, but Linux has a Safe Mode, but unlike Windows, this is the last know version of the application that worked as far as it knows, so it is a different version, but your Data is the same, so do not get confused about what is going on, it will not load drivers, so hopefully you can get into the system and can do updates and fix what has gone wrong, so a Linux Wizard will go to the command line first, so let us do just that.

The boot up sequence of the Computer is first, this is the BIOS Screen, you might have to make a choice of which drive to boot, and those options can be UEFI or none UEFI, and you need to know if your BIOS is UEFI, but if you pick UEFI it will not blow up your computer if it does not support it, in fact, it checks it every time anyway, but picking no UEFI when you have it, will come with a performance hit.

The Grub screen may blow past so fast you never see it, you have a few seconds at most to hit a key sequence that will enter into Grub mode. Why you would want to get into Grub mode is as follows, let us say you try to make your own home or var folder by mounting it on a hard drive, having done this, I will talk about it, the only reason the computer will send you to a Grub screen is if there is an option to change something, this is where it reads in your /*etc*/fstab file that defines your hardware, it has the boot up information for your computer, it will give you two options if it finds any missing hardware, one is to hit Ctrl-D to ignore the errors, depending on the distrobution, depends on what happens, OpenSuse tends to just boot you out after log in, whereas Kubuntu will go back to the last Home folder, or the one stored on the same hard drive as the OS, the other option if you do not want to ingnore it, or cannot ignore it, is to type in your root password, this will take you to a command line, that black box most Windows users never heard of nor used, but now you are in one, and let me explain it in detail, the entire screen is black, you have an arrow sign or some other symbol like > or ?, and that is it, if you have no idea what you are are going, your only option is man help, man is short for Manuel, and help is self explanatory, but man help will more than likely scare you at first, so let us look at the first line:

```
bash,  :,  ., [, alias, bg, bind, break, builtin, caller, cd,
command, compgen, complete, compopt, continue, declare, dirs, disown,
echo, enable, eval, exec, exit, export, false, fc, fg, getopts, hash,
help, history, jobs, kill, let, local, logout, mapfile, popd, printf,
pushd, pwd, read, readonly, return, set, shift, shopt, source,
suspend, test, times, trap, true, type, typeset, ulimit, umask,
unalias, unset, wait - bash built-in commands, see bash(1)
```

Now, bash is the language the Terminals is using, sh is a different type of language but is similar, in Unix you have sh or bash, you use scripts with sh extensions, and can call some files using sh, like: sh myProgram.sh or .run or with no extension at all, but it must have Execution permissions to run.

Alias is the first command you can type man alias, you can use arrow keys and any time you see a screen that says “more” or “less”, you are in man mode, or manual mode, and can use “Q” or “q”,

without the quotes, and if you are in a thermal and everything scrolls off screen, you can use Ctrl-Page-Up and Ctrl-Page-Down keys. An alias is command that has another name, like ls, it is short for list, like most bash command, they use short names, as such, we have a file called .bash_aliases, which is called by a file called .bash_profile which calls .profile and which sets up your bash Environment, and that also calls .bashrc which calls .bash_aliases, and not to confuse you, but if you get here from Grub or Alt-Crlt-F6 or AC F6, where you can open a terminal using F2 through F6, but F7 is only used for GUI mode, and to make things confusing, you have to make sure the other files get called, so files are calling files that called it, just to make sure someone calls it, and that is because you do not know how they got there, for example, if you are logged into the GUI and open a Terminal you might not see any messages, yet if you AC F6 into a Terminal you see a lot of messages, and that is because of this circular pattern of decedent calls that change nothing, other than to make sure all the files get called, I mapped it out one time, but found it varies from one Terminal to the next, so an alias is defined in my .bash_aliases file that gets called, and these vary by who wrote them, but I like to include a colorized version of ls, as such if you want to know what ls you are running, run the command “which ls”, it might return “/usr/bin/ls”, if you run that command and see no color, you know that ls is an alias for “/usr/bin/ls”, the way an alias works is cool, you can filter the results of the real ls command, and change the color of the name depending on its file extension, and it you type “/usr/bin/ls -las”, you will get no color unless you have that alias file definition and if we ran “unalias ls”, and typed just ls, we would no longer get that color output, I will include that code in the Appendix.

If we made a mistake in your fstab file, we can go into Grub and put in our password, and run the command “nano /etc/fstab”, nano is a command line text editor, if you need line number run “nano -c /etc/fstab”, look at the bottom status area for the line number changes, Ctrl-o, as in oh, which reminds me of something few know, the first telephone alphabet on rotatory phones did not have an O or a Z because they get confused with 0 and 2, so you could not do this on a phone, just thought you need to know that, you need a computer keyboard, Wizard humor, and Ctrl-x will exit, and x also means times, but only hit it once. Your arrow keys get you around, and you have insert and overwrite modes by hitting insert key, so this is the first thing any Linux Wizard should know, because if you get here due to a problem, you need to know how to fix it, and you cannot always depend on Kandalf to come to the rescue to put out the Fire the Dragon started.

The fstab file uses # or pound signs as comments, so anything after a # will not get ran, so if you run the command “# ls” you will not get any output, if you run “ls # echo hi”, only ls will run and not hi. This file is located in the ect folder for Et Cetera, and where a lot of configuration files are stored, and you need root permissions to access those files.

There are a lot of bash commands, and you can write whole programs using bash, if you do not have a function you need, you can write one, so bash is worth learning, and there are not a lot of commands you need to learn, you just need to know how to use them, and most commands are very intuitive, like exit, if you are logged in to any process exit will normally get you out of it, but this guide is not about learning all the bash commands, it is about knowing which ones you need to use to do some work you need to get done. In a terminal Ctrl-C will normally Cancel what you are doing, if that does not work after hitting 3 times in a row, your other options are Ctrl-D, which can also delete the line you are, and Ctrl-X, or Esc, that button in the upper left corner of most keyboards, is Escape, I wrote a bash program that could emulate human behavior, it was written in CPM, which is dead now, but you can build a series of menus with it, to make your job easier, I like to use bash scripts for installing my OS, backing up files and other things, and why I spend a lot of time in a Terminal, so let us look at bash.

Bash has logical operators like if, else, end if, they look like this:

```
if [ “$Condition” == “this” ]; then
        doThis;
fi
```

the fi is an end if, and with just that simple logic you can write an entire program, and it is a very power language, not much you cannot do with it in Linux or Unix, it is the most go to language I know of.

All distributions have a way to do updates, most will use a GUI as well as the command line, so let me talk about the command line first, in Debian systems, that is pronounce Deb-Ian, where Debbie was Ian’s wife at the time, and Ian Murdoch, was Suicide by Police, and just one reason I do not like to use Debian, but it uses apt, or apt-get, or aptitude, and you must run it using Supper User privileges, so we use sudo, or Supper User Do this, you have to log in using the root users password, in Linux you have one root user, this password can be the same as yours, but if you log in with both user name and password, you need to use root as the user name, or su which gives you a supper user terminal, and then you can drop having to use sudo, to get out of su mode, type exit, if you exit again it might close the terminal, or a tab in that termial.

In Debian and Ubuntu and all Distributions based on them, the basic commands are as follows:

```
sudo apt update && sudo apt upgrade -y
```

Note the -y is to accept all the defaults, first it runs update which will update all your repositories, than it will look for upgrade’s in the newly downloaded repositories, and the && means only do this if the first one completes without any errors, if you had a single & it would execute both regardless of if the first one passed, which is the same as just putting a ; at the end to end that line of comands.

OpenSuse (Open soo'-suh)

```
sudo zypper refresh; sudo zypper update -y
```

Distribution-Upgrade is used to upgrade your Distribution from one version to another, but if you are running Ubuntu in LTS mode, you do not want want to do a Distribution-Upgrade, but in a Rolling Distribution you need to, and this is how:

```
sudo zypper dist-upgrade -y;
```

OpenSuse has Tumbleweed which is a Rolling Distribution, and they have Leap, which is a stable scheduled released version.

Whenever you do something that crashes your system or makes it behave in a way you do not like, you wish you could “Turn Back-Time”, as Tiny Turner would put it, back to how it was running yesterday, and you can if you install timeshift.

In Ubuntu

```
sudo apt install -y timeshift
```

In OpenSuse

sudo zypper install -y timeshift

You want to run timeshift once to set up the location for where you will save the files, if you have a spare drive that has space, its best to use it, these files are large and you can set how many versions you want to save, so how far you want to “Turn back time”, the default is 5, I set it to 3, and put it on my home drive that I have as a separate RAID 1 drive. I like to create the first snapshot to see how long it takes, it will create a new image each day, and you can check you System Monitor to see if it is running if you are wondering why your computer is acting sluggish, this is normal if you have it enabled, in fact you cannot avoid having to do it if you want to use it, but I have found if I leave my computer running, it will always do it at a time I have nothing going on.

Timeshift only stores you OS and var files and not your Data Files in home, so if you want to track changes in files, that is called a back up system, so do not confuse what Timeshift does with a data backup, all it can restore is your configuration files, and key OS files, it stores this data under a user name for timeshift, but if you have stuff in var, that can have mixed outcomes, and why you want to keep var on a separate drive.

Since Timeshift will also store your var folder, so if you have websites or Virtual Machines, this will also get backed, so be aware of this if you want to restore, since it can overwrite your VM or Websites with old data, I am not sure it will do this, never tired it, but I would hope it would know this, but you have to backup your VM to ensure you have a back up plan. You have to manually run Timeshift the first time, and you have a command line version that can restore a snapshot.

sudo timeshift --restore

If you have not figured it out, a lot of times the package names are the same, but each distribution has its own name for its package manager:

Ubuntu, Debian
apt, or apt-get, or aptitude

OpenSuse
zypper

Arch Linux, Manjaro
pacman, yay for AUR

Fedora
yum or dfn

If you want to track your changes make a file and call it something you will remember, like install-distro-Name.sh, and put all the files you are installing in it before you install them, save the file to USB device in case things go south, and if you store them in a way that you can just run the file, it will install everything just like you had it, this makes it better for you to track your software and make sure it gets installed if you want to change distributions, or upgrade and want to make sure that if anything goes wrong you can reinstall it, and save it on a few drives in case one goes bad.

I just scratched the surface of a Terminal, but it is the least you need to know to become a Linux Wizard, you must also know about Configuration files, and how to get around in Linux.

“System-Setting” is our first go to when it comes to Configuration files.

Dolphin is KDE’s default File Explore, and the first time I used it, I hated it, but after I leaned out to use it, I only use it, but not everything will work out of the box, like Write to USB, you might find your Distribution does have imagewriter, which is Suze, or isoimagewriter which is Red-Hat, but there is a way to get them to work, but that is what Scripts are for. Setting up Dolphin is the first thing to do, I like to make a few changes to the settings, first click on the upper right corner … symbol, or right click to find the Show Menu, and then click on Settings, ensure Show MenuBar and Show Toolbar are checked, then click on configure Toolbar, and add “Up”, and “Refresh”, and “New Tab”, “Show Hidden”, and “Terminal”, do this by going to the top menu items in the list, and placing your cursor just above the top separator on the last item and select the item in the list on the left to move it to the right and click on the arrow button to add it to the list, it is drag and drop and click ok.

You can right click and select show only Icons, the default is text beside icon, and you can configure Dolphin to your liking. You can hit Ctrl-L, it is a lower case L, but l, 1 and I all look the same to me, but not L, so why didn’t the phone company remove 1 or L, and if you do not get the Joke, its because you have never had to use a Phone to log into Linux, I have, no Joke, but it was a push button with the same limitations as the rotatory, so not a huge improvement, considering the rotatory phone will work without power, it has to have line power, but no external power like most digital phones, and why you will find a PBX in Linux, and Telegram that can also use your phone line, Linux is an On-Line Application for many around the world, and why a URL while pull up a web browser, so to get an editable version of the path hit Ctrl-L, so L for Editable Line, I use this feature to copy a path, you can click on the tab parts to move around the folder structure.

In Dolphin we have what is known as Places and Bookmarks, click on Home in the left upper corner, and you should see a Music, Video, and maybe some other folder that is not in Places, but you want it to be, if you see a Music or Video folder under Home that is not under places, then double click on Music or Video to enter it, right click and you should see Add “Music” or “Video” to Places, click on that option, now drag Music up above Trash and let it go, this is how you add Bookmarks to Places, and move them around to places you want them.

KDE Taskbar is something you need to learn, if you want your Taskbar on the Top or bottom, or opposite of what it is now, you right click on it and pick Edit Panel or Enter Edit Mode, depending on your Distribution, now you have many options, one is to drag the screen edge to where you want it and release, another is to add a Widget to your Taskbar, you have many to pick from, I like Weather, but let us add a new one, say Comic Strip if you have a Debian based distro that still runs Qt 4 apps, so right click on the Taskbar and hit the Add Widget button and a Window on the left should have a list of Widgets, we want the Comic Strip, or Weather, they all work the same way, so double click on it, and once you are done, just click outside the Taskbar to finish editing, if you have an extra panel, it will normally have a red x to close it, now you should have a Happy Face or an image of the Weather outside on your Taskbar, right click on it and pick Configure Comic Strip… Click on Get New Comic, click on install next to the ones you like, I like Dilbert and NASA Picture of the Day, now close, than check all of them, set the time, and other things, now its ready, just click on it, and you will see tabs with Comics Strips, if they do not all show up just give it time, if it never shows up, you can report it, but it is no longer maintained due to lack of interest porting it over to Qt 5, so just remove it, it has

controls at the bottom of each image, and forward and backward and expand to make it bigger to read, and that is how you add Widgets, if this is a Weather app, pick your Location, and how you want it, F or C.

If you want to add a CPU Temperature gauge, you need to Add Widget, Get New Widget, type in CPU, and find one, I picked Thermal Monitor, now this App uses a Signal from the ACPI or Advanced Configuration and Power Interface, has two options, source or grouped, source uses the whole group, whereas group allows you to unchecked some features. Note that if for some reason you system does not send out a request, and normally this is only required if you have a UPS, so what I do if I see the word “off”, is to right click and “Reload Temperature Sources”, and wait, if you want this to fix itself, you need to run a command to enable ACPI, first we need to see what we have installed:

```
ls -l /usr/lib/modules/$(uname -r)/kernel/drivers/acpi
```

If you see acpi_configfs.ko.xz, or something like it, you should have the Configuration in place, so reloading should work, but somewhat annoying, so run this:

sudo dmesg | grep -i acpi

If that confuses you run this:

acpi -i

Joking, look for you UPS, if you do not have one, do not worry, the last command to acpi for information should show you what services are activated,

If you do not have a UPS set up you will see something like this:

Battery 0: Discharging, 0%, rate information unavailable

Otherwise you see the status of your UPS.

Now run

sensors-detect

And read the instructions, pick yes for all those in YES, and no for all in NO, until you get to the prompt that says

Lastly, we can probe the I2C/SMBus adapters for connected hardware
monitoring devices. This is the most risky part, and while it works
reasonably well on most systems, it has been reported to cause trouble
on some systems.
Do you want to probe the I2C/SMBus adapters now? (YES/no): yes
Using driver `i2c-i801' for device 0000:00:1f.3: Intel Panther Point (PCH)
Module i2c-dev loaded successfully.

Say yes for all of these.

Now type in:

```
sensors
```

You should see all your Sensor data, and with any luck you will not have to hit reload again, because that should have set it up to run Automatically, and you have to do this if you change Motherboards, or any hardware that uses ACPI.

The Taskbar in KDE Plasma 5 is nice, not that 4 wasn't nice, but it did not upgrade to 5 nice, so it made KDE unstable for a time, and you have to watch adding Widgets from unknown authors, these can run with the same permissions you have, and somethings required root, so know which ones do, read about them if you are not sure.

You can drag items around on the Taskbar in Edit mode, you can make it bigger, change the Time format, and if you want to see your Workspace Switcher, you need to define at least 2 Workspaces, to check click on the Menu Icon on the Taskbar Menu and pick System Settings that is normally under Favorites or Settings, then pick Workspace Behavior, and then Virtual Desktop and make sure you have at least two, if you only have one pick Add, and apply, and you should now see two Work-spaces in your Taskbar, I like to use Cube, if you want to turn off Screen blanking pick Screen Locking.

I like to have a clean Desktop, and Clean Taskbar, I do not like to Pin items to my Main Taskbar, but I like to Pin tabs in my browser, and its because in Browser I know its loaded, if you pin an icon to the Taskbar you might activate it trying see what is in it, and really you have a Menu, it has Favorites, what else do you need, and the answer is nothing, learn to use the system the way it was intended to be used.

If you right click on the Menu Icon, you have a few options, one is to Configure Applications Launcher, where Configure the way the Menu looks, say you want to have Favorites organized by List instead of Grid, or Edit Applications, where you edit the menu itself.

KDE organizes its Menu System by Category, you have several levels you can create, some menus will open up one level deep on hover, while levels greater than 1 required a click to open them, and you can alter that behavior in System Settings.

You can search for a program by clicking on the menu and type the name, and then you can right click and add to Favorites.