

Why Linux?

NWFLUG Community Education

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2018-10-18

Young people interested in careers involved with science, mathematics, engineering, or almost any technical field should be introduced to **Linux**.

What is Linux?

More formally known as **GNU/Linux**, it's a free operating system (OS) invented by Linus Torvald to provide a UNIX-like system with all the standard command-line and graphical tools that accompany such a system.

Linux, rather than Windows or Mac, provides much of the behind-the-scenes *cloud* computing in data centers and high-performance computing facilities. It also powers the Android and the *Internet of Things* (IoT).

What is Linux?

A more detailed look:

`<https://www.lifewire.com/
basic-guide-linux-operating-system-2202786>`

Why Linux?

The command-line environment provides the user with almost complete freedom to automate tasks typical in research or other work or study in technical fields.

Linux also gives the user much greater control over what happens and what does not happen on his or her computer.

As a bonus, **Linux** comes packaged with thousands of free applications in such categories as: games, office suites, publishing and graphics, CAD, FEA, education, science, mathematics, music, art, and many others.

Windows:

- Is everywhere
- Is primarily a GUI operation
- Is expensive
- **Hides internals**
- **Has a non-case-sensitive file system**
- Updates when Microsoft says it should, often restarting your computer without your permission.

Linux:

- Is pretty much the opposite of Windows in most respects
- Is everywhere, although it is usually working behind the scenes
- Has both GUI and intrinsic command line capabilities
- **Is FREE**
- Shows as much or as little of the internals as you want to see
- Has a case-sensitive file system
- **Performs upgrades only if you want it to**
- Is unparalleled for the scientist or engineers: a powerful, “programmable calculator”

Other opinions

<https://www.lifewire.com/windows-vs-linux-mint-2200609>

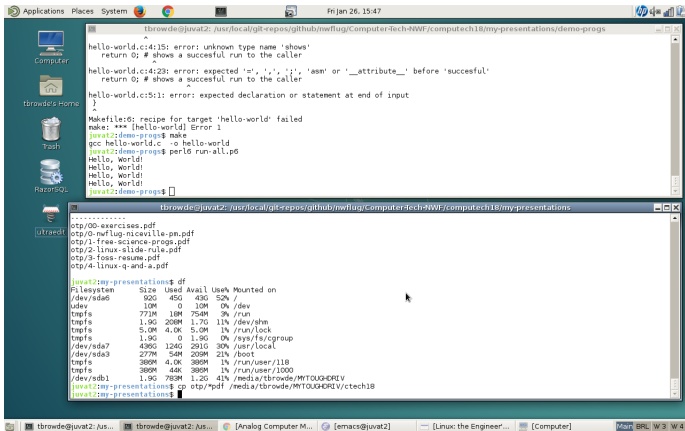
<http://whylinuxisbetter.net/en/>

<https://www.popsoci.com/switch-to-linux-operating-system#page-4w>

<https://www.makeuseof.com/tag/linux-beginners-guide/>

Linux: Introduction

Empty while working at the command line. . .



The screenshot shows a terminal window with the following content:

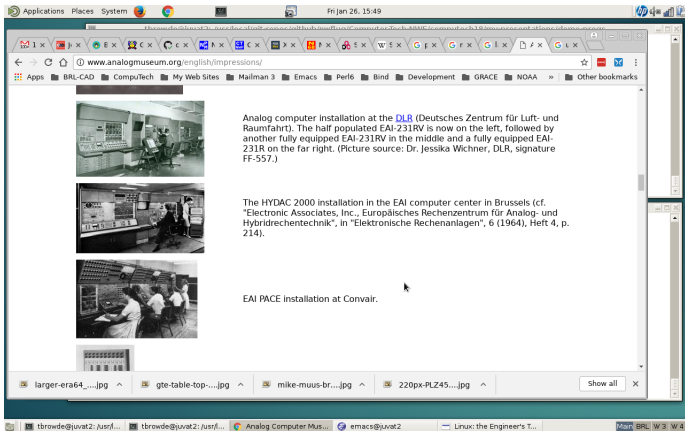
```
tbrowde@juvat2: /usr/local/git-repos/github/nwflug/Computer-Tech-4WF/computech18/my-presentations/demo-progs
hello-world.c:4:15: error: unknown type name 'shows'
return 0; # shows a successful run to the caller
hello-world.c:4:23: error: expected '=', ',', ';', 'asm' or '__attribute__' before 'succesful'
return 0; # shows a successful run to the caller
hello-world.c:5:1: error: expected declaration or statement at end of input
^
Makefile:6: recipe for target 'hello-world' failed
make: *** [hello-world] Error 1
juvat2:demo-progs$ make
gcc hello-world.c -o hello-world
juvat2:demo-progs$ perl6 run-all.ps
Hello, World!
Hello, World!
Hello, World!
Hello, World!
juvat2:demo-progs$
```

The second terminal window shows a directory listing:

```
tbrowde@juvat2: /usr/local/git-repos/github/nwflug/Computer-Tech-4WF/computech18/my-presentations
-----
otp/00-exercises.pdf
otp/0-nwflug-niceville-pn.pdf
otp/1-frae-science-progs.pdf
otp/2-linux-slide-rule.pdf
otp/3-foss-resume.pdf
otp/4-linux-q-and-a.pdf
juvat2:my-presentations$ df
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda6        92G  45G  43G  52% /
udev            10M   0  10M   0% /dev
tmpfs           771M  18M  754M   3% /run
tmpfs           1.9G  208M  1.7G  11% /dev/shm
tmpfs           5.0M  4.0K  5.0M   1% /run/lock
tmpfs           1.9G   0  1.9G   0% /sys/fs/cgroup
/dev/sda7       438G  124G  291G  30% /usr/local
/dev/sda3       277M   54M  209M  21% /boot
tmpfs           386M  4.0K  386M   1% /run/user/118
tmpfs           386M  44k  386M   1% /run/user/1000
/dev/sdb1       1.9G  763M  1.2G  41% /media/tbrowde/MTTOUGHDRIV
juvat2:my-presentations$ cp otp/mpdf /media/tbrowde/MTTOUGHDRIV/ctech18
juvat2:my-presentations$
```

Linux: Introduction

Cluttered while working with windowed programs. . .



On Windows or Mac:

- Use **Putty** on Windows or a terminal app on an iPad to connect to a cloud server (as cheap as \$2.50 per month)
- Install the Windows 10 Ubuntu subsystem
- Use a live, bootable USB [recommended for intro]
- Use a live, bootable CD/DVD [only as a last resort]

Linux: How to get it (cont.)

- Install Linux as a VM guest on Windows 10 Pro Hyper-V
- Install VirtualBox or VMware to run a Linux Virtual Machine

Best:

- Use a dual-boot, native installation
- Use Hyper-V on Windows 10 Pro
- Use a dedicated GNU/Linux PC or laptop

Linux comes in many “flavors” Linux comes in many flavors

A Linux system comes packaged in many **distributions** such as Debian, Ubuntu, Linux Mint, and others.

See <<https://distrowatch.com>> for lots of information about popularity, download statistics, and other stats on hundreds of **distros**.

We think *Linux Mint* is one of the best *distros* for beginners. I prefer *Debian* and have used it for over ten years

There is practically an infinite amount of Linux resources to be found on the Internet.

My group, the Northwest Florida Linux User Group (NWFLUG), meets monthly, and we have an installation meeting (by appointment only) on the third Monday of every month.

Check out our website at <<https://nwflug.org>>.