Beginner Linux

For the Autodidact

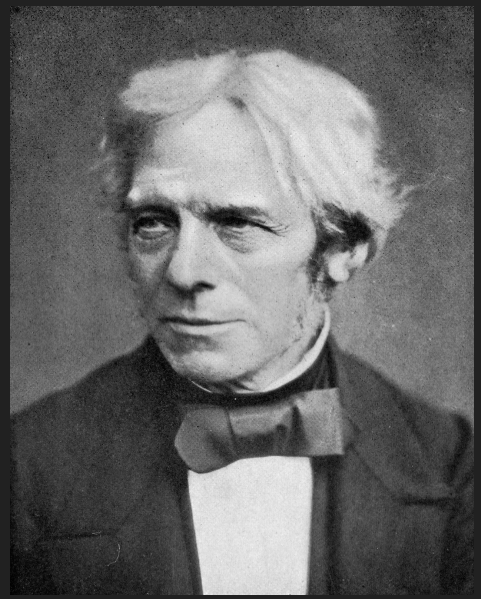
Brent Benzinger
https://bbenz.io

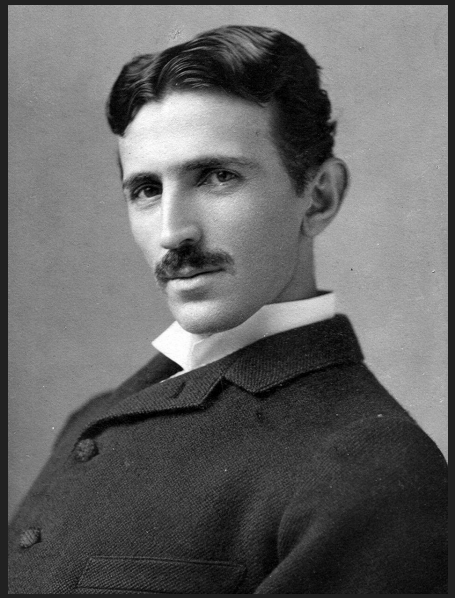
Autodidact

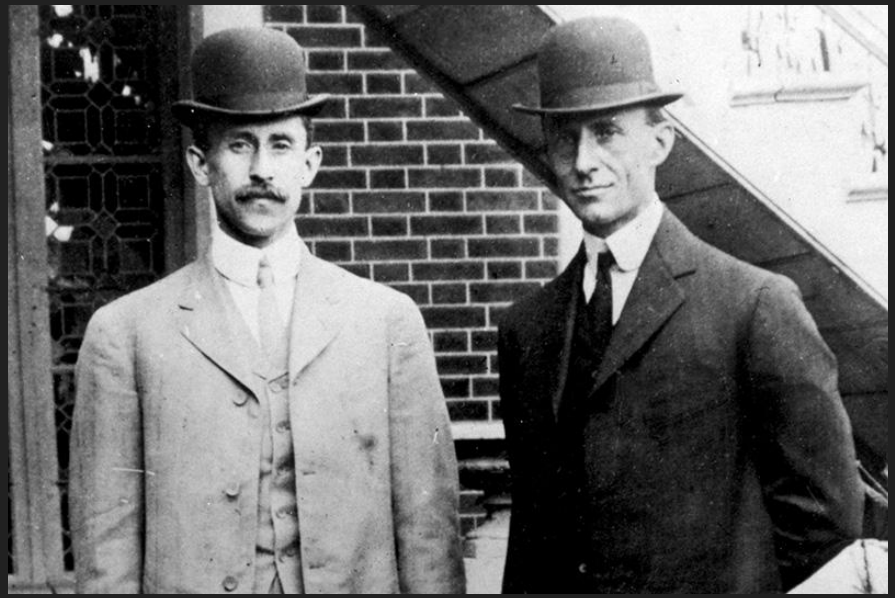
A self-taught person

Autodidact

No formal education in area of expertise







Beginner

- People who installed Linux earlier this month
- Any one who wants to improve
- Experienced users looking to engage the beginner community

Not Just Linux

- How to accumulate skill
- Applicable to any discipline
- Finding ways to practice deliberately

How to Teach Yourself Stuff

From a guy that’s questionably qualified

Outline

Autodidacticism: Philosophy of self teaching

Self Taught Linux: Conquering the learning curve

Abstract before technical: “What” vs. “How”

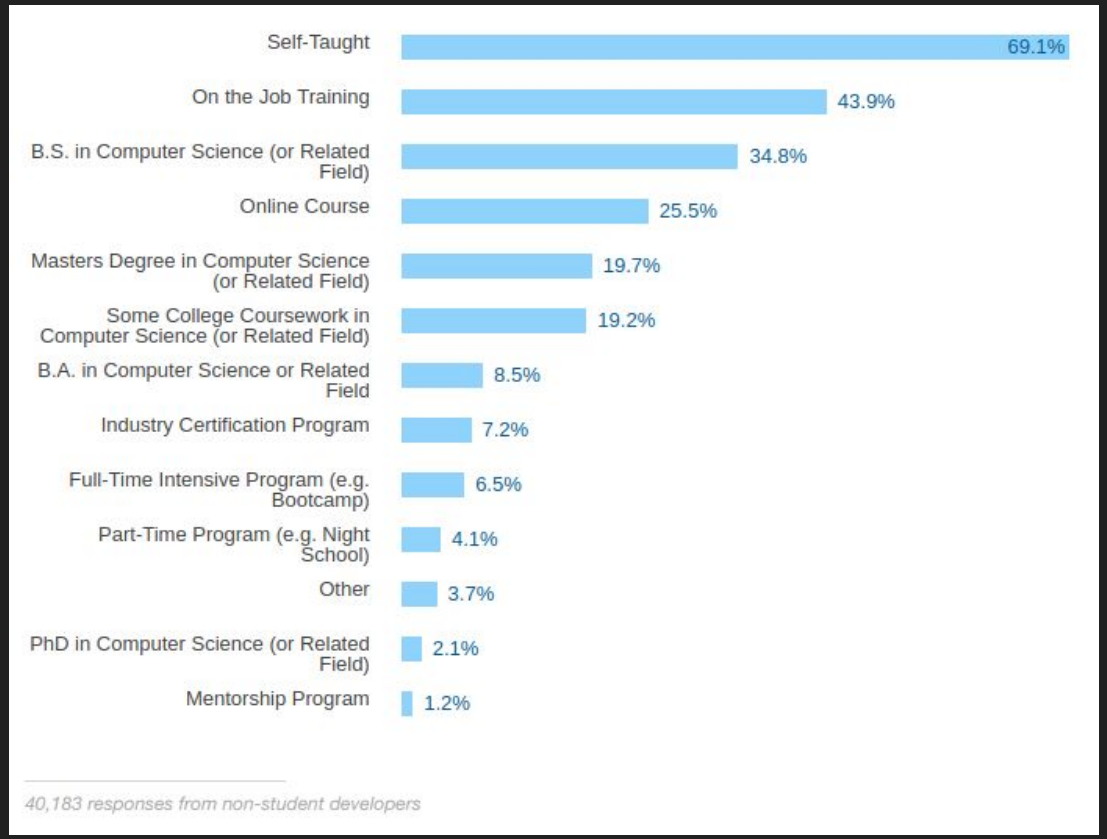
Gather learning resources: Finding materials that work for you

Join a community: Linux as a second language, learn by immersion

Practice: Command line cardio

We’re all self taught

2016 StackOverflow Survey



Being able to teach yourself

- The tech world moves quickly
  - Learning quickly will make you flexible and competitive
- Nobody knows everything
  - The ability to acquire knowledge quickly will always be of use to you

Thesis:

- Learning stuff is cool
- Linux is cool
- Let’s learn Linux

Mistakes to make and mistakes to avoid

Self-Regulated Learning

Failing to predict future changes in memory: A stability bias yields long-term overconfidence.

- People often have a faulty mental model of how they learn and remember
  - Receive study materials
  - “Judgement of learning”
  - Test on the materials

WORDS PRESENTED IN LARGER FONTS WERE INCORRECTLY JUDGED TO BE MORE MEMORABLE

(Kornell et al. 2011)

Recall is better than rereading

Self-Regulated Learning: Beliefs, Techniques, and Illusions.

- Recall involves remembering a stimulus that is not present
  - Your learning resource will not always be present

Recall is better than rereading

Self-Regulated Learning: Beliefs, Techniques, and Illusions.

- Making errors essential
  - Enhances long term retention

Guided reading is more effective

A Mind For Numbers: How to Excel at Math and Science.

- Reading straight through a chapter may not be the most effective way to build a model of the information presented

Understanding and Memorizing

Effective learning: Twenty rules of formulating knowledge.

- These words work well together
- Our goal is to understand Linux

Understanding and Memorizing

Effective learning: Twenty rules of formulating knowledge.

- Do Not Learn If You Do Not Understand

Learners don’t understand episodic vs semantic memory

Episodic and semantic memory.

- I also do not understand what that means

Learners don’t understand episodic vs semantic memory

Episodic and semantic memory.

“They are autobiographical events, describable in terms of their perceptible dimensions or attributes and in terms of their temporal-spatial relations to other such events.” (p. 389)

Learners don’t understand episodic vs semantic memory

Episodic and semantic memory.

- Episodic: “Meeting a retired sea captain.”
- Semantic: “The chemical formula for common table salt is NaCl.”

Learners don’t understand episodic vs semantic memory

Snow Crash

- What is cron?

Learners don’t understand episodic vs semantic memory

Snow Crash

- Early 1990’s
- Cyberpunk
- Sci-fi
- Samurai Swords
- Virtual Reality
- Bruce Lee

Learners don’t understand episodic vs semantic memory

Snow Crash

"Daemon" is an old piece of jargon from the UNIX operating system, where it referred to a piece of low-level utility software, a fundamental part of the operating system. In The Black Sun, a daemon is like an avatar, but it does not represent a human being. It's a robot that lives in the Metaverse. A piece of software, a kind of spirit that inhabits the machine, usually with some particular role to carry out. The Black Sun has a number of daemons that serve imaginary drinks to the patrons and run little errands for people.

- Neal Stephenson
“Snow Crash” (1992), p. 63

Friendly to Beginners !== Beginner Friendly

Jargon

[1] A technical terminology unique to a particular subject.

[2] Speech or language that is incomprehensible or unintelligible; gibberish.

Arcana

Specialized knowledge that is mysterious to the uninitiated.

Basic Navigation: Not That Exciting

- pwd
- ls
- ls -al
- cd ..
- touch file.txt
- mkdir test_dir

Define the problem

- Arcana makes it hard to understand
  - Linux / GNU
  - Shell / Bash / Terminal
  - Yum / apt-get
  - Vim / Emacs
  - Touch / Cat
  - glob / grep
  - Symbolic link / Hard link
  - deb / rpm

Define the problem

- Commands that you don’t understand seems arbitrary

  Ask Ubuntu: “How to list all installed packages”
  - dpkg --get-selections | grep -v deinstall
  - dpkg --get-selections > list.txt
  - dpkg-query -W -f='${PackageSpec} ${Status}\n' | grep installed | sort -u | cut -f1 -d \ > installed-pkgs
  - dpkg -l | grep ^ii | sed 's_ _\t_g' | cut -f 2 > installed-pkgs
  - dpkg -l |awk '/^[hi]i/{print $2}' > 1.txt

Define the problem

- Explanations are dense:

  Ask Ubuntu: “What is the difference between apt and apt-get?”
  - list: which is similar to dpkg list and can be used with flags like --installed or --upgradable.
  - search: works just like apt-cache search but sorted alphabetically.
  - show: works like apt-cache show but hide some details that people are less likely to care about (like the hashes). The full record is still available via apt-cache show of course.
  - update: just like the regular apt-get update with color output enabled.
  - install,remove: adds progress output during the dpkg run.
  - upgrade: the same as apt-get upgrade --with-new-pkgs.*
  - full-upgrade: a more meaningful name for dist-upgrade.
  - edit-sources: edit sources.list using $EDITOR.
  - policy: works just like apt-cache policy

Define the problem

- Explanations are dense: “What is the difference between apt and apt-get?”

Define the problem

- Explanations are dense: “What is the difference between apt and apt-get?”

  Answers for the beginner concerns:

  apt is just a streamlined version of apt-get

Define the problem

- Being stuck in beginner land is boring
- Commands that you don’t understand seems arbitrary
  - Why did I have to type -aux? What does ps mean?
- Explanations are dense
  - What’s the difference between sudo apt-get / sudo apt: overly technical definition
- Not all distros work the same
  - Different flavors of linux have different commands
- Not all linux users have the same goal
  - Some people are using linux desktop as a programming environment
  - “Why am i learning chmod?”
- YOU DON’T EVEN KNOW WHICH QUESTIONS YOU SHOULD BE ASKING

Solution: Here are the questions you should ask

1. What am I doing
2. Why am I doing this
3. What does this command do
4. Do I need to understand this fully in order to keep going
    a. You can learn rapidly if you're willing to accept that understanding will come with time
5. **If I do this wrong will I break my machine**

Case Study: Permissions

```
chmod 664 foo.txt
```

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Case Study: Permissions

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5. **If I do this wrong will I break my machine**

Case Study: Permissions

```
chmod 664 foo.txt
```

1. Permissions are a thing
2. Everyone online says they're important
3. 4's, 6's, 7's indicate permissions
4. I don't think I need `chmod` right now, but I get the main point
5. Using `chmod 777` is bad

Case Study: Permissions

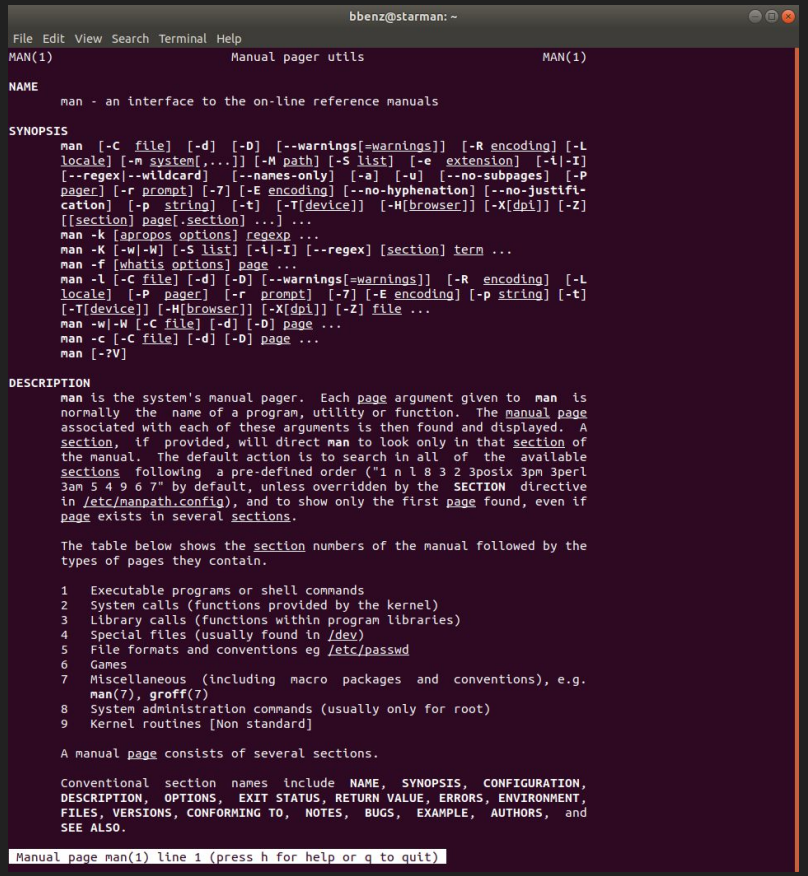
```
chmod 664 foo.txt
```

This is enough to hold onto until you get the chance to create a memorable episode

Learning Resources

Man Pages

- Hard to learn from
- Better used as a reference



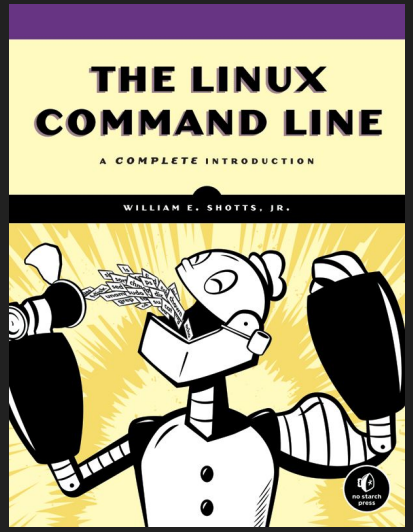
YouTube

- HakTip - Linux Terminal 101

- The Linux Man

Books

- https://github.com/EbookFoundation/
- Humble Bundle
- No Starch Press



Find a community

Online Hangouts

- Hacker News
- Discord
- IRC
- Reddit

StackExchange

How to stay in shape: Command Line Cardio

Deliberate Practice

- Practice every day
- Make it the first thing you do
- No command is too trivial

References

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Thank You