Porting the SFTE Reference Handbook into the 21st Century

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0. Introduction

0.1 Situation: You Need a Mach/Altitude Chart

What do you do?

- Recreate tools from scratch
- Import/scan pictures
- Recreate pictures with digital drawings

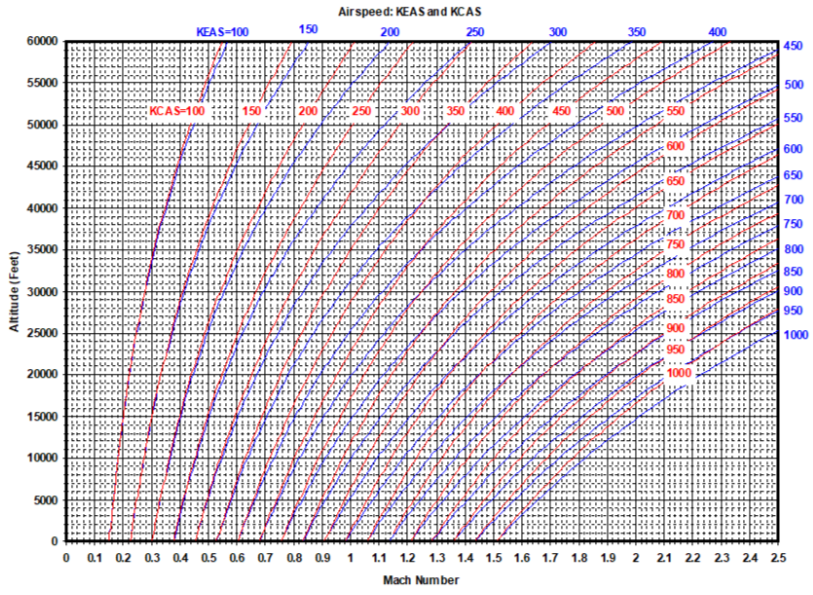


Figure 1: Mach-Altitude-Airspeed Plot

0.2 What If Instead You Had...

- The highest quality VECTOR (zoomable) graphics
- Reproducible examples in multiple languages and formats
- Universally available content

1. What it was

1.1 Handbook History

- A book. . .
- . . . that fit in your hand (debatable. . . see CRC)
- Quick reference for common facts/figures

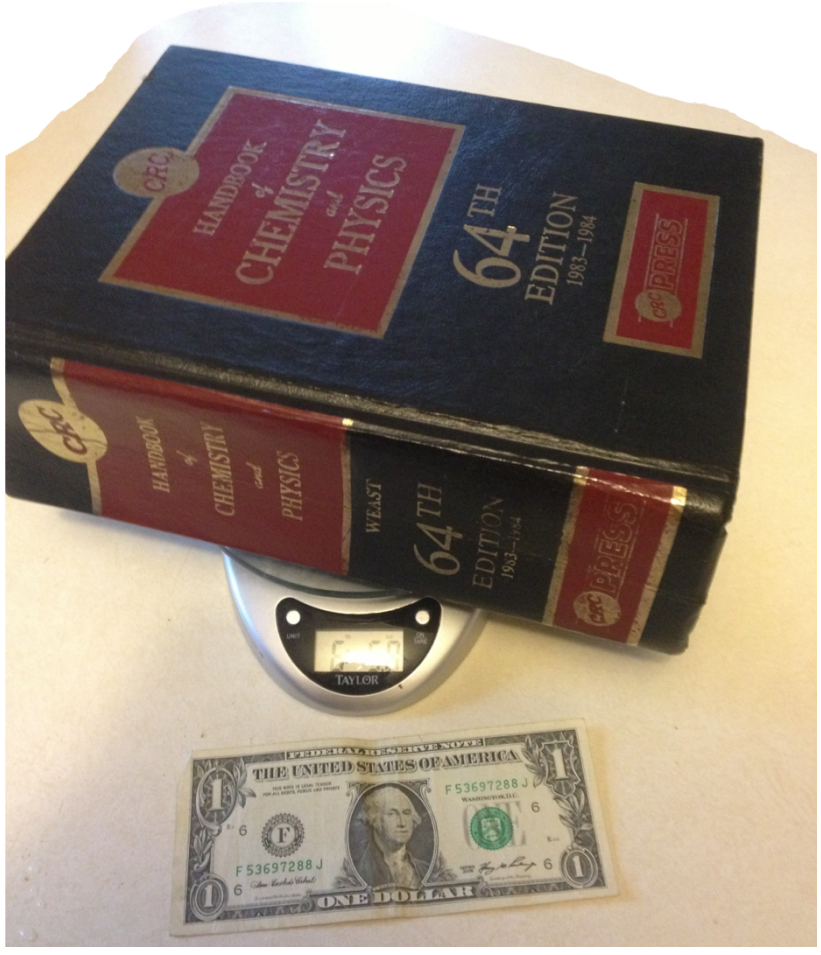


Figure 2: The CRC: One of the most famous "handbooks" in history

1.2 SFTE Handbook

- 2001: First edition
- 2013: Most recent major revision
- 2019: 2 Addenda

Source - Microsoft Word® - Microsoft Publisher®

Production - PDF - Hardcopy

Issues

- Images of various format, resolution, and quality
- Maintenance
  - Life cycle costs
  - Closed v open architecture
- No clear procedure for amendments and revisions

2. What it is

/pôrt/

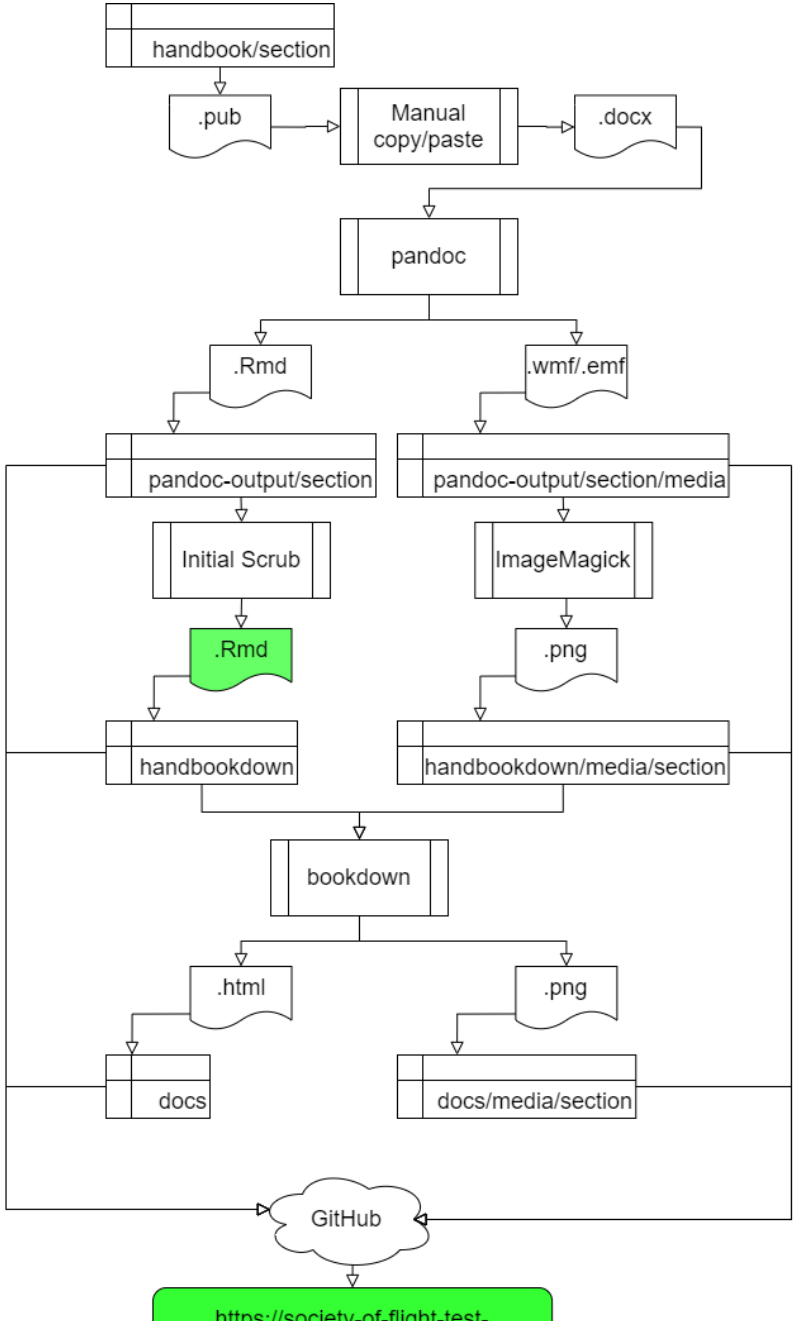
verb

verb: port; 3rd person present: ports; past tense: ported; past participle: ported; gerund or present participle: porting

COMPUTING

transfer (software) from one system or machine to another.
“the software can be ported to an IBM RS/6000”

2.2 Porting the Handbook



Source

- Unicode Text (Rmarkdown)

Production

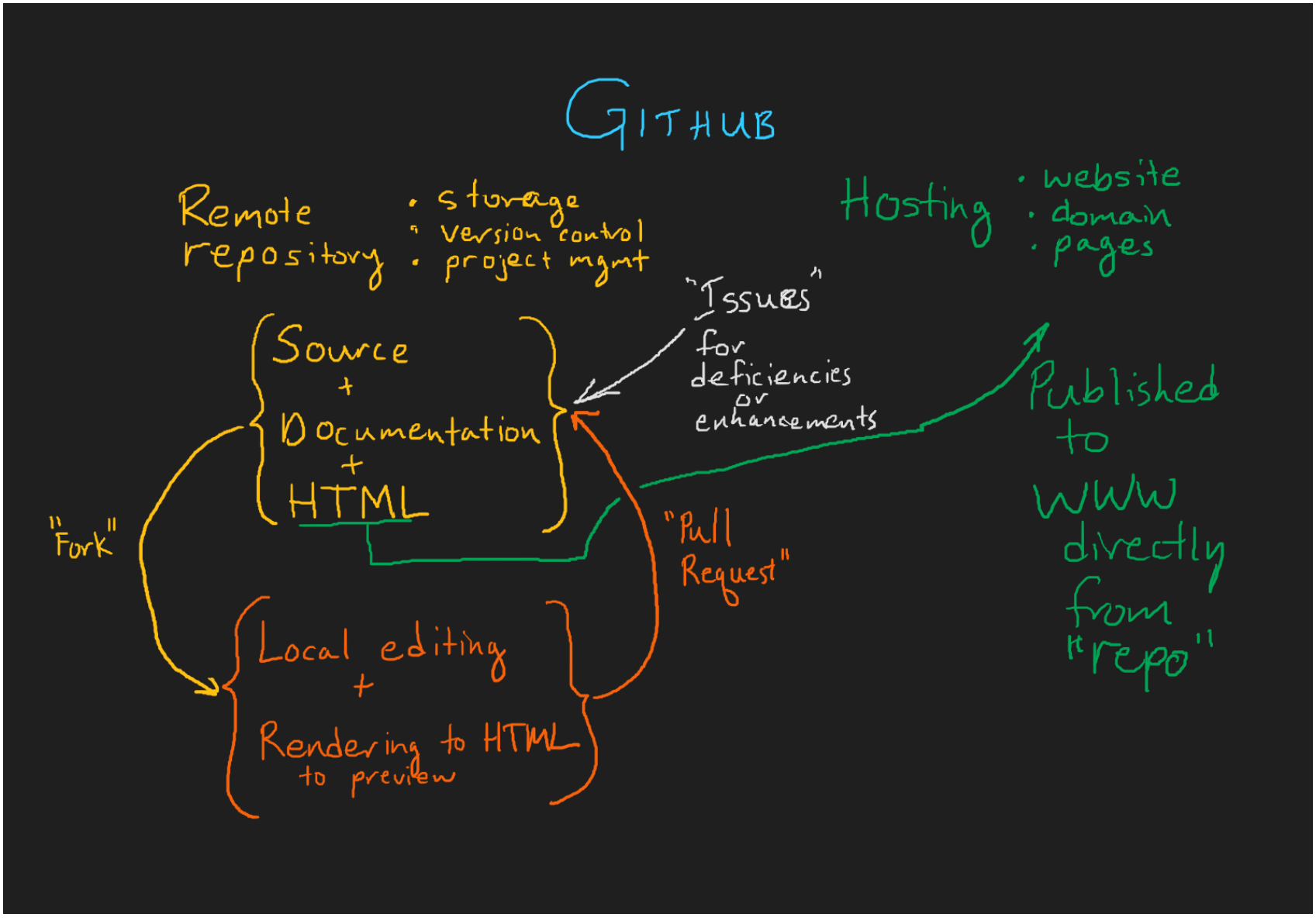
- HTML

Required Tools

- `git`
- `R`
- `bookdown`
- text editor
- command line
- web browser
- GitHub account

Optional Tools

- An Integrated Development Environment such as...
  - VS Code
  - RStudio


GITHUB
Remote repository
• storage
• version control
• project mgmt
Hosting
• website
• domain
• pages
"Issues"
for deficiencies or enhancements
Source + Documentation + HTML
Published to WWW directly from "repo"
"Fork"
"Pull Request"
Local editing + Rendering to HTML to preview

3. What it shall be

Now: Complete HTML

Next: Complete PDF

Next^2:

- Code to...
  - generate every plot
  - implement every function
- Dynamic Handbook with...
  - interactive visualizations
  - interactive calculations

Next^3: "Refactor" entirely $\rightarrow$ Handbook 2.0
A means of organizing and making accessible FTE knowledge, practices, and standards

Summary

There's a lot to know

Modern tools allow for

- more ready access
- engagement with knowledge
- reproducibility
- fine-grained version control

Things of value require **cultivation**

- growth environment
- weeding
- pruning
- support
- attention

References

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