HPC Carpentry

An Overview of HPC Carpentry's Activities

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HPC means we have choices

1. **H**ardwood
2. **P**lywood
3. **C**hip board

https://commons.wikimedia.org/wiki/File:S1,_S2,_S3_(3542257521).jpg

https://commons.wikimedia.org/wiki/File:Spruce_plywood.JPG

https://media.wickes.co.uk/is/image/wickes/N0705_164516_00

HPC CARPENTRY

But that has nothing to do with anything ...

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https://media.wickes.co.uk/is/image/wickes/N0705_164…

Overview

1. What is The Carpentries
2. A Very Brief History of The Carpentries
3. Where does HPC Carpentry fit?
4. Current Status
5. Roadmap
6. The mini version
7. Comms Channels

A Very Brief History of The Carpentries

- It all started with this guy –>
- … in 1998

Dr Greg Wilson
https://carleton.ca/scs/?p=14196

This is what Greg said about Software Carpentry

We are lab skills for scientific computing. This project started because I was working with physicists and astronomers using first generation and parallel computers. And they would come into my office with their 50,000 lines of Fortran and ask me to make it a zillion times faster. And they had never heard of version control and weren't really sure why they should be writing functions because nobody every taught them. And it is unfair to look down on people if they are not doing things right if you have never shown them how.

https://www.youtube.com/watch?v=FtKO619O5g0

Where does HPC Carpentry fit?

1. Knowing about Git and functions does not quite solve all problems.
2. Researchers with HPC requirements do not necessarily know how to effectively scale their applications
3. HPC facility operators become frustrated by non-knowledgable users making use of shared resources.
4. Candidate solution: Use Carpentries techniques.

How did it all begin

- Earliest commit 2013
- Peter Steinbach blog post (2017) - HPC in a day
- CarpentryCon 2018, 2020, 2022
- Super Computing BoF 17, 18, 19, 21

Where are we now?

1. We are doing things In the Carpentries Way
   - two day setting
   - students type along with instructors
   - get feedback
2. Two main takeaways:
   - muscle memory
   - vocabulary
3. Not experts after two days but:
   - know what answer looks like
   - know how to find answers

Current Status

- We used to have our own shell lesson but that has now been deprecated in favour of the Software Carpentry lesson.
- HPC Intro has been reworked
- Using Amdahl executable rather than having students write and compile it
- Two workflow lesson available. For Snowflake and Maestro

Roadmap and Challenges

Roadmap:

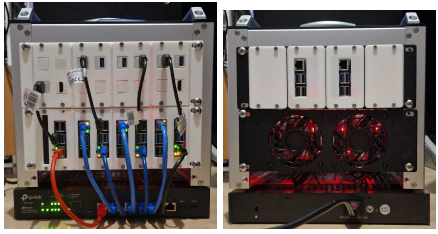
- HPC Carpentry is currently in Lesson Program Incubation
- We have a checklist of items (from The Carpentries Handbook) that we are working on to comply with the general committee policy.

Challenges:

- Demonstrating the value to HPC centres.
- How to adapt material to diverse clusters?
- Should we or can we standardise to cloud cluster?

A miniHPC

- CarpentriesOffline started about four years go (2022 SSI Fellowship).
- We decided we need an HPC version too due to the difficulties associated with getting access to HPCs for training.
- Raspberry Pi 4s, one login node, five compute nodes, one access point
- The same open source software stack as many HPCs: Slurm, lmod, munge
- EESSI for software



Front and Back

Comms Channels

- Come talk to me
- Visit our website
- Join our bi-weekly meetings
- Join our channel in The Carpentries' Slack workspace

HPC Carpentry

CarpentriesOffline

Your Help is Needed

- Do you have any suggestions for more domain-specific conferences where we could reach members of HPC Carpentry's target audience of learners and or potential instructors hosts for workshops?
- Are you interested in teaching, organising and/or hosting HPC Carpentry workshops?
- Are you interested in getting involved with maintaining the lessons?

Resources

- Greg Wilson's talk at PyCon 2014
  https://www.youtube.com/watch?v=FtKO619O5g0
- Andrew Reid's talk at SIGHPC 2024
  https://www.youtube.com/watch?v=FtKO619O5g0
- Peter Steinbach's blog post, HPC in a day?
  https://carpentries.org/blog/2017/06/hpccarpentry
- ChatGPT for its help with the LaTeX template!