

Python on Trillium and Open OnDemand

Ramses van Zon

October 27, 2025

- Why Python?
- Why Supercomputers?
- Access
- Using Trillium
- Installing packages
- More about OnDemand

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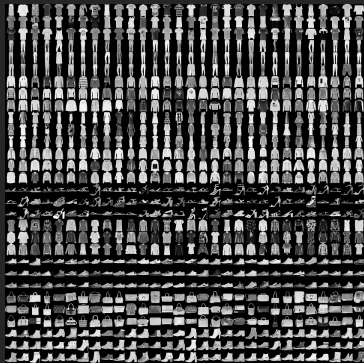
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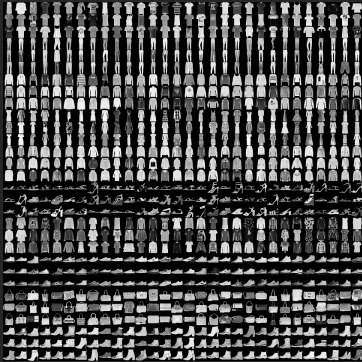
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- This matters a lot less when Python is the ‘driver’ or ‘glue language’ for optimized packages or programs, such as for AI and ML.

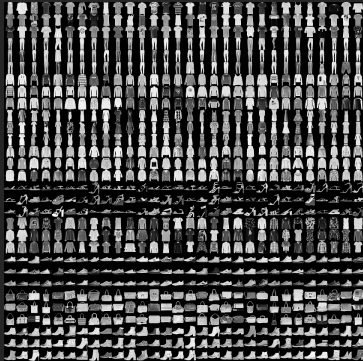
Running example



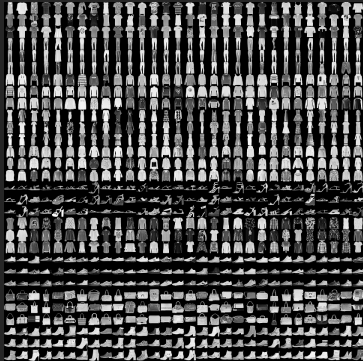


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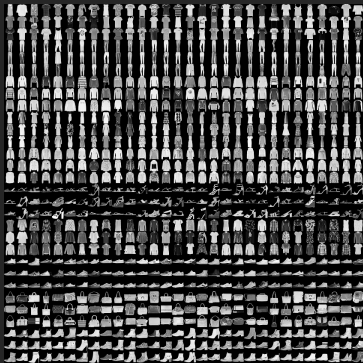
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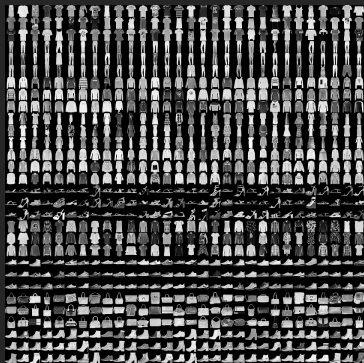


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Although this example would be too small to warrant running on the Trillium supercomputer, it will demonstrate many aspects of running Python applications on such a system.

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**Digital Research
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Congratulations, you are now doing [Advanced Research Computing](#)!

Advanced Research Computing

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We are going to need to
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Patience, we'll get there.

Getting started

Let's get onto Trillium!

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You can learn a lot more about using Trillium than we will cover today, in the self-guided course "Intro to Trillium", see <https://scinet.courses/1389>.

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- You can now go to "Clusters; Trillium Shell Access" to get a command line on one of the Trillium login nodes.

Hands-on 1

Hands-on 1 (5 min)

Get logged into Trillium by one of these two methods.

Then, type the command

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$ which python
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(and press Enter).

It should say:

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Note: The dollar sign (“\$”) in the slides will be an abbreviation of the full prompt, which will look more like [rzon@tri-login01 ~]\$.

A digression about all those different organizations

Digital Research Alliance of Canada

CCDB

Compute Canada

SciNet

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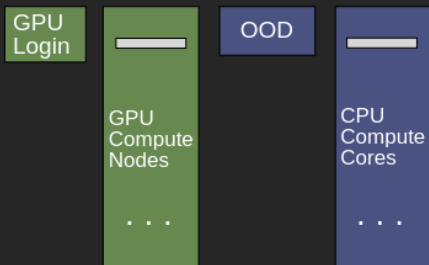
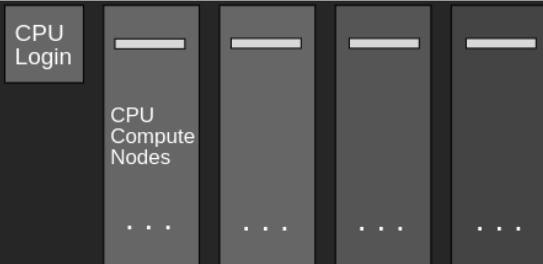
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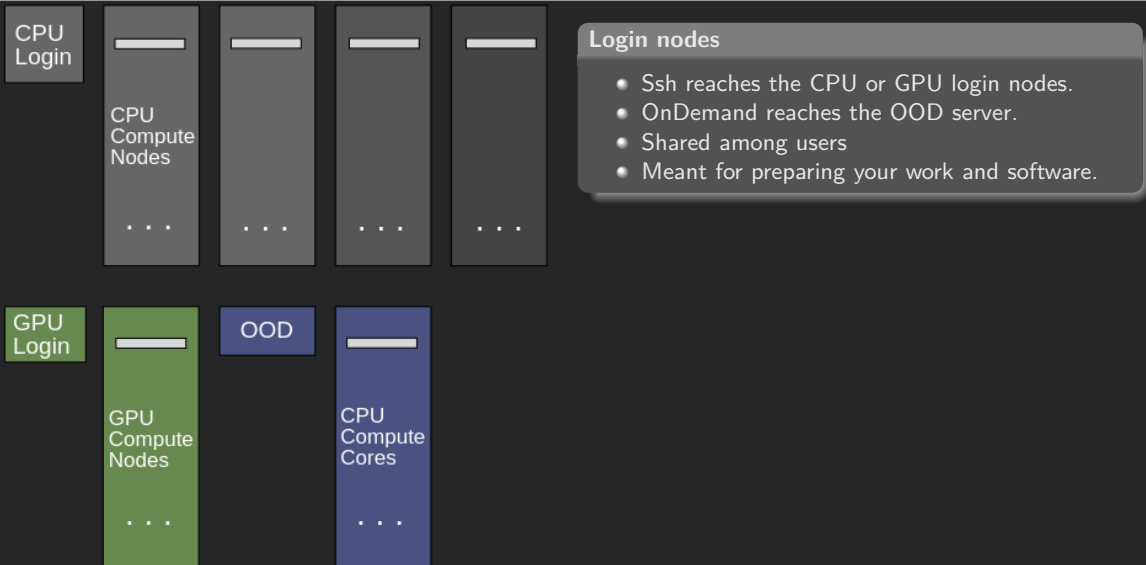
Need to brush up on the Linux command line? SHARCNET has a self-guided course for that:

<https://training.sharcnet.ca/courses/enrol/index.php?id=182>.

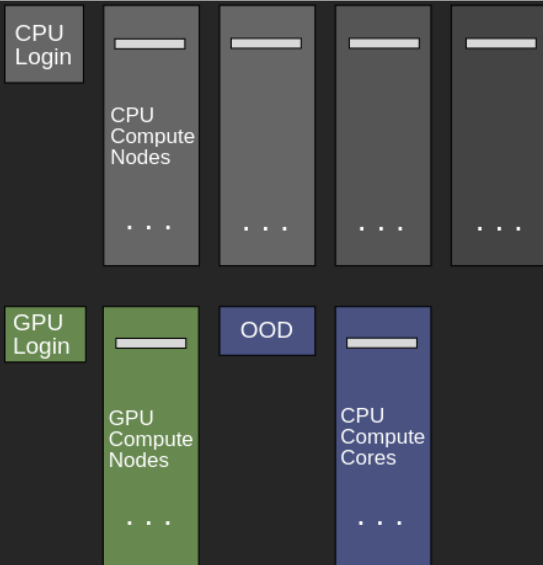
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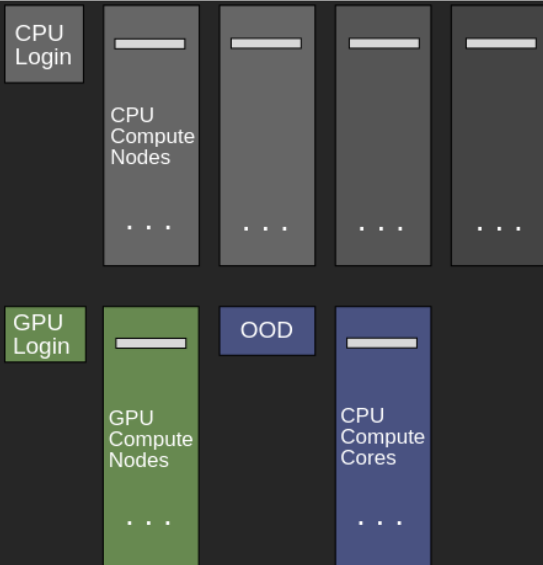
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- OnDemand reaches the OOD server.
- Shared among users
- Meant for preparing your work and software.

Compute nodes

- CPU: scheduled by 192-core node.
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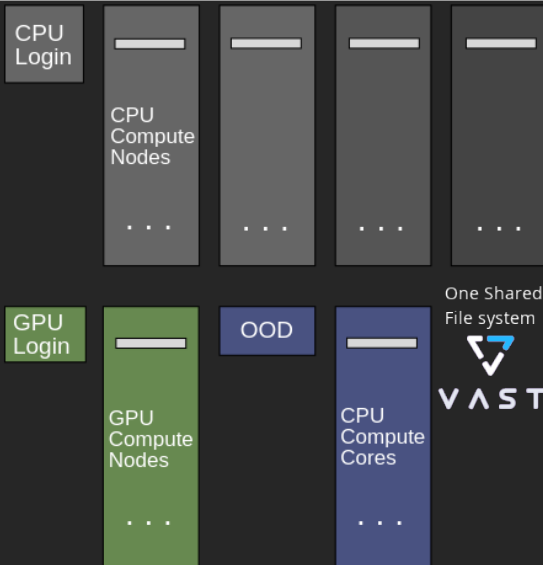
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Software packages

It's a shared system

On Demand

Not everything needs 192 cores

But what if you have that one postprocessing step that you need less than 192 cores for? What if you need to do some visualization? For interactive work of that and other kinds in python, JupyterLab is typically used.

We installed the OnDemand to provide this JL and other features in the browser.

What is OnDemand?

Let's jump in (hands on)

In your browser, log into <https://ondemand.scinet.utoronto.ca>

Use your CCDB account Use your CCDB password Use your MFA

You'll see the ondemand interface.

OnDemand is this web interface. It was developed at OSC, and is getting widely adopted for many supercomputing systems. In Canada, Trillium, Nibi, and Vulcan, as well as on Grex

More

