Research - Running Python/R applications and containers on the clusters

> A lot of scientific applications at UNIL are based on Python or R. Running such applications on HPC clusters can be complex regarding the constraints induced by the use of shared facilities with no administrative rights. This course provides information on how to be autonomous regarding installation/run of Python and R applications on the DCSR clusters. It also covers the way to run and create Singularity containers to use applications with complex dependencies ont the clusters.

Objectives

- Learn how to install and run in a clean way Python and R applications on the UNIL HPC clusters. The purpose is NOT to learn Python or R programming
- Learn how to run and create Singularity containers

Target audience

Any PhD students, post-docs, researchers of UNIL and CHUV who need to use (their own/open source) Python or R applications on the UNIL HPC clusters

Content

At the end of the course, the participants are expected to:

- Be able to install and run Python applications on HPC clusters (excepted Jura) from:
  - the DCSR software stack
  - Pypi repository
  - Conda repository
  - Sources
- Understand the interest Python/Conda virtual environments
- Be able to install and run R applications on HPC clusters (excepted Jura) from:
  - CRAN
  - Bioconductor
- Be able to properly organize the installed applications in the storage facility

- Be able to be autonomous with running Singularity containers and with creating simple ones.

Length

1 half-day

Organization

On a quarterly basis

Location

To be defined or remotely

Prerequisites

- Basic knowledge of working with command line tools on Linux based operating systems. If you do not feel comfortable with Linux commands, please follow the first module of our introduction course dedicated to a Linux.
- Basic knowledge of bash is an asset
- Be comfortable with all the topics addressed in the introduction course DCSR, Introduction to using the clusters.
- Please bring your own laptop with WIFI eduroam activated. You will need a SSH client to connect to the clusters. Windows users can install e.g. Putty or MobaXterm or a Linux virtual machine or use the Windows Subsystem for Linux (WSL) if available (Windows 10).

> IMPORTANT: Please register using your UNIL email address!

Course dates and registration

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