



From laptop to LUMI - CSC services for researchers

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CSC – Finnish expertise in ICT for research, education and public administration

Outline

- What is CSC
- CSC computing services
- CSC data services
- Other services
- How to get access?

CSC - IT center for science

- CSC is non-profit company producing IT services for research and higher education
- Owned by ministry of education and culture (OKM) and higher education institutions
- Most CSC services are free of charge for end users

When I might need CSC?

- My calculation takes very long, but could be run in parallel
- My calculation needs a lot of memory
- I need lots of storage space
- Scientific application is available at CSC
 - expensive commercial application
 - open source applications without need to install myself
- I want to publish data and make it available

How CSC supercomputers differ from university cluster?

- Main difference is in scale
- Parallel calculations up to 25 000 cores (Mahti) or hundreds of GPUs (LUMI)
- Larger storage space available (1 TiB default in Puhti)
- Similar command line based terminal access
 - As a new service CSC provides also access via web browser
- Similar module system and batch queue system

CSC computing services

- Puhti
 - use cases from interactive single core data processing to medium scale parallel simulations
 - some large memory nodes
 - new web interface for accessing Puhti
 - rule of thumb: up to few tens or hundreds of cores use Puhti
- Mahti
 - geared towards medium and large scale parallel simulations
 - rule of thumb: in order to use Mahti application should utilize efficiently a minimum of 128 cores

CSC cloud services

- Sometimes one needs more flexibility than is provided by the operating system and the system libraries of supercomputers
- CSC provides variety of cloud computing services
- cPouta: general computing cloud
- ePouta: computing cloud for sensitive data
- Rahti: container cloud e.g. for running web services

- LUMI is pan-European supercomputer hosted by CSC
- For Finnish users access is via CSC
- Over 10 000 GPUs
- available in June 2022
- "small" (about size of Mahti) CPU partition
- auxiliary partition for data-analytics with lots of memory (32 TB)

CSC data management and storage services

- Allas object storage
 - Data can be accessed anywhere from internet
 - Data can be shared with different levels of access control
- FAIR (Findable, Accessible, Interoperable, Reusable) data services
 - Publishing and finding datasets together with metadata

Other services

- Training
 - Large number of training courses in various aspects of scientific computing
- Visualization
- Expert services
 - Help in using scientific software
 - Help in optimizing application performance

Getting access to CSC supercomputers and services

- User needs to create a CSC account at my.csc.fi
 - With HAKA authentication only couple of mouse clicks
- For computational and storage resources CSC project is needed
 - project manager needs to be an experienced researcher (post doc or higher)
 - project manager can add users to project

Questions ?

- CSC user guide <https://docs.csc.fi>
- FAIR data services <https://fairdata.fi>
- Services for researchers <https://research.csc.fi>
- CSC Training <https://csc.fi/training>