

UNICORE

Uniform Access to the JSC Resources

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Motivation



SLURM -> srun,...

LoadLeveler -> llsbmit,...



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Motivation

Supercomputers are managed by Resource Management Systems that handle the scheduling

- JUQUEEN: IBM LoadLeveler
- JURECA: Slurm
- Different job description languages for specifying # of nodes, memory requirements, wall time, ...



- to unify and simplify the supercomputer access

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Why UNICORE? Advantages

- Webportal access
- One interface to create, submit and monitor jobs
 - *Seamless, secure, and intuitive access to distributed resources and data*
- No need to learn system specific commands
- Open Source
- Easy to install and to configure clients
 - *e.g. Linux, Windows, MacOS versions of stand-alone clients*
- Integrated data management
- Integrated resource management

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UNICORE Clients

Clients:

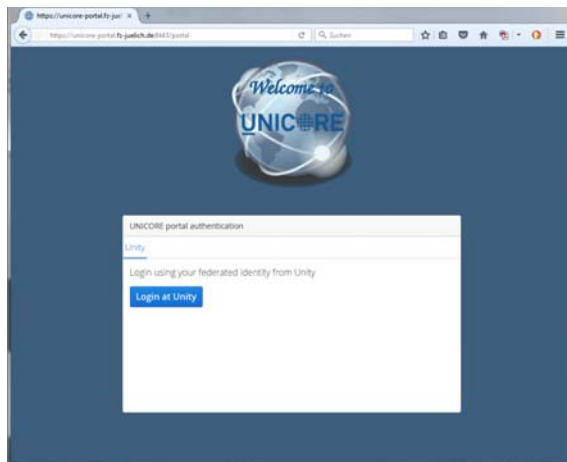
- Portal Client: Web based client to use with a browser
- URC: Eclipse-based graphical client
- UCC: Commandline Client
- UFTP: File Transfer Client

UNICORE Portal

Prerequisites:

- Web Browser (needs Java enabled)
- URL: <https://unicore-portal.fz-juelich.de:8443/portal>

UNICORE Portal



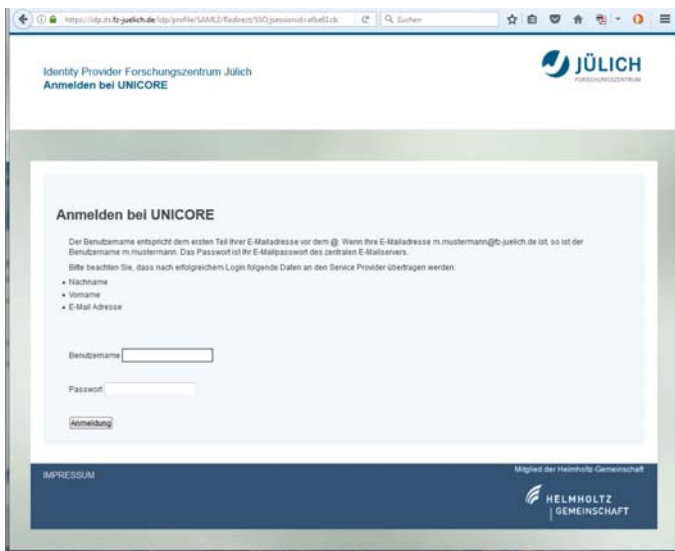
UNICORE Portal

Select your preferred authentication option

Search:

Local authentication with	Remote authentication (choose your identity provider)
X.509 Certificate	Academy of Visual Arts Leipzig
	Academy of fine arts Dresden
	Albert-Ludwigs-Universität Freiburg
	Alfred-Wegener-Institut für Polar- und Meeresforschung
	Arthistoricum.net - Fachinformationsdienst Kunst, Fotografie, Design
	BA Dresden
	BA Glauchau
	BSB München
	Badische Landesbibliothek

UNICORE Portal

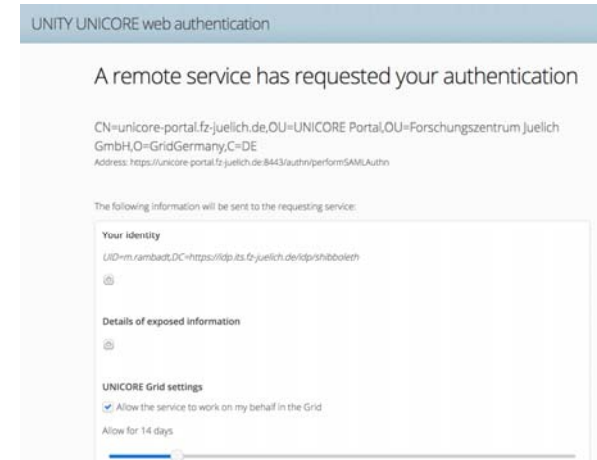


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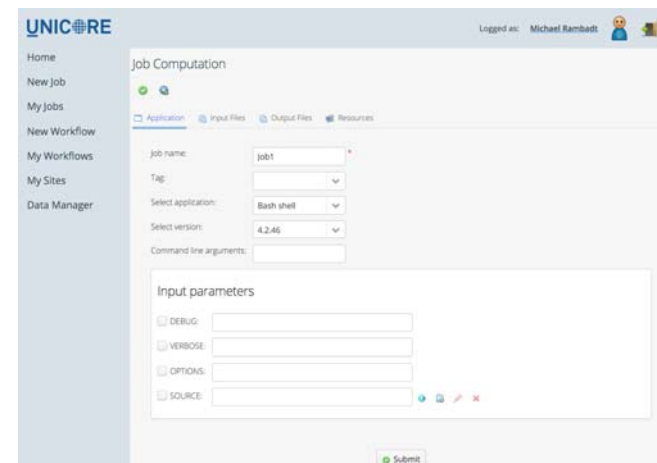


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UNICORE Portal

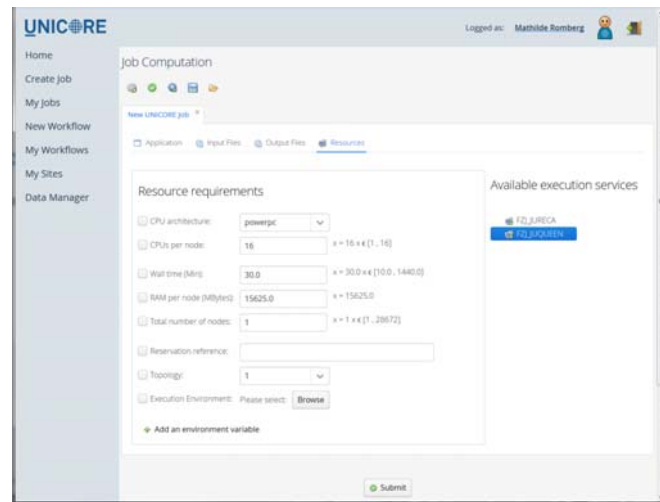


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UNICORE Rich Client (URC) Installation und Configuration

Prerequisites:

- Java Runtime Environment (JRE) \geq 1.8
- Personal user certificate
- Approved account on JURECA, and/or JUQUEEN

Download the client from <http://www.unicore.eu/download>

FZJ Registry:

https://fzj-unic.fz-juelich.de:9112/FZJ/services/Registry?res=default_registry

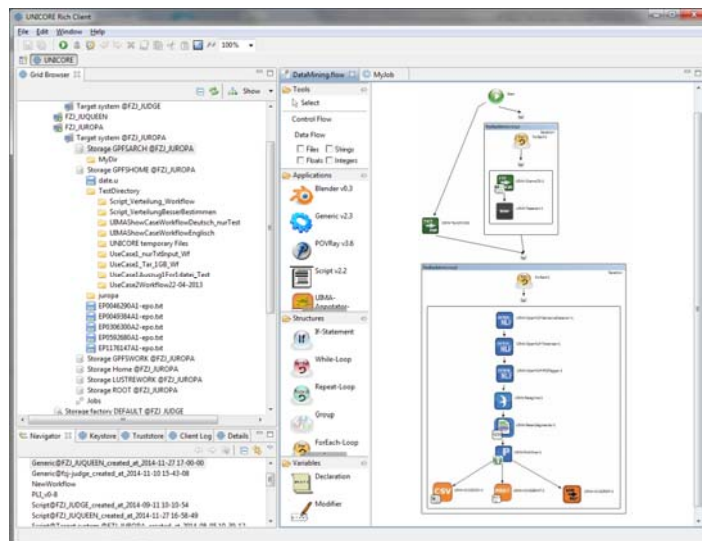
Access the Testgrid:

- <http://www.unicore.eu/testgrid/>

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URC



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UNICORE Commandline Client (UCC)

- Run jobs and workflows, get status, get output, transfer files



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UNICORE Commandline Client (UCC) – cont.

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General:
list-applications - lists applications on target systems
create-tas        - create a target system service instance
list-transfers   - list the server-to-server transfers
list-storages    - list the available remote storages
download-config  - downloads configuration profile for this client
system-info     - check the availability of services
create-storage   - create a storage service instance
list-sites      - list remote sites
share            - share a resource via its ACL
connect         - connect to UNICORE
list-jobs       - list your jobs
JOB execution:
run             - run a job through UNICORE
job-status     - get job status
reservation    - create and manage reservations
batch          - run ucc on a set of files
exec           - run a command through UNICORE
job-restart    - restart a job
get-output     - get output files
job-abort      - abort a job
QOSM-BES:
bes-list-jobs  - list jobs running on BES.
bes-get-output - get the output files of a BES activity.
bes-terminate-job - terminate BES activity
bes-submit-job - run a job through the UNICORE BES interface
bes-list-act  - provides information about the UNICORE BES interface
bes-job-status - get BES activity status
Other:
wzrf          - perform a WSRF operation
shell         - start an interactive UCC session
run-groovy    - run a Groovy script
connect-to-testgrid - get credentials for the public testgrid
run-test     - runs a test
Security:
issue-delegation - issue trust delegation assertion
list-attributes  - list VO attributes of the user
save-attributes  - save attribute assertion to XML file.
Workflow:
workflow-info   - lists info on workflows.
broker-run     - submit a work assignment to a service orchestrator
  
```

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Efficient filetransfer with UNICORE FTP (UFTP)

UFTP

- Data streaming library and file transfer tool
- Fully integrated into UNICORE
- Standalone (non-UNICORE) client available
- Data transfer from client to server (and vice versa)
- Data staging between UFTP-enabled sites

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Efficient filetransfer with UNICORE FTP (UFTP)

UFTP

- efficient synchronization of single local and remote files using the rsync algorithm
- Optional compression / encryption of data streams
- Java application

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UFTP Client 0.6.0
Usage: uftp <command> [OPTIONS] <args>
The following commands are available:
cp          - Copy file(s). Wildcards '*' are supported.
info        - Gets info about remote servers
ls          - Lists a remote directory.
mkdir       - Creates remote directories.
rm          - Deletes remote files or directories.
sync       - Sync a file (the slave) with a master file.
Enter 'uftp <command> -h' for help on a particular command.
  
```

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UNICORE Summary

- Webportal
- Platform-independent Java application
- Uniform access to JUQUEEN, JURECA (and other European and US Supercomputers)
- Job submission, monitoring and control
- SSH support
- File management

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Links and Documentation

UNICORE Portal

- http://www.fz-juelich.de/ias/jsc/EN/Expertise/Support/Software/UNICOREProduction/unicore_forschungszentrum.html

UNICORE downloads

- <https://www.unicore.eu/download/>

UNICORE documentation

- <https://www.unicore.eu/documentation/>

UNICORE Testgrid (Access via portal)

- <https://omiiei.zam.kfa-juelich.de:8443/portal>

Questions, troubles, or suggestions?

- contact unicore-info@fz-juelich.de