



# Batchsystem for CLAIR 2018 and beyond

End of LSF, begin of SLURM

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  - CLAIX 2016 will also run with SLURM
- Customers of the service „Integrated Hosting“ will also have to migrate the nodes to SLURM

# SLURM as the batch system for CLAIX 2018

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## General differences between LSF and SLURM

- Submission
  - bsub < batchscript ⇔ sbatch batchscript
  - slurm NEEDS a batchscript, does not allow commandline submission

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- Pending/running jobs
  - bjobs ⇔ squeue
- Kill jobs
  - bkill ⇔ scancel

# SLURM as the batch system for CLAIX 2018

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## LSF to SLURM transition - general options

	LSF	SLURM
jobname	-J	--job-name (-J)
outputfile	-o	--output (-o)
walltime	-W	--time (-t)
„queue“	-q	--partition (-p)
„project“	-P	--account (-A)



# SLURM as the batch system for CLAIX 2018

## LSF to SLURM transition - jobtypes

	LSF	SLURM
Number of processes	-n	--ntasks (-n)
shared memory job	-n <num> -a openmp (-R „span[hosts=1]“)	--ntasks=1 --nodes=1 --cpus-per-task=<num>
distributed job	-n <num> -a intelmpi   -a openmpi	--ntasks=<num>
hybrid job, n MPI ranks x processes per node with y threads per process	-n <num> -R „span[ptile=x]“ OMP_NUM_THR...=y	--ntasks=<num> --tasks-per-node=<x> --cpus-per-task=<y>

# SLURM as the batch system for CLAIX 2018

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## CLAIX 2018 partitions

- c18m
  - „mpi“-nodes, Skylake Xeon SP Platinum X8160, 48 cores, 2 sockets, 192 GB RAM
- c18g (future, not yet ready atm.)
  - „gpu“-nodes, Skylake Xeon SP Platinum X8160, 48 cores, 2 sockets, 192 GB RAM,
  - 2 Tesla V100, 16GB RAM

Accounts have a default partition and „allowed“ partitions

CLAIX 2018 projects will be able to switch to another partition from the „allowed“ list

Submission without partition parameter results in submission to the projects default partition

Submission without a project results in submission to the project “default”, its default partition is “c18m”

# SLURM as the batch system for CLAIX 2018

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- The only supported shell is the default shell „zsh“
- Shebang of the batchscript therefore should be:

`#!/usr/local_rwth/bin/zsh`

- Use other shebangs at your own risk

# Live Demo

# SLURM as the batch system for CLAIX 2018

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## Features not yet available

- X11-Forwarding
- Multinode jobs which are in desperate need of ssh ( e.g. CFX )
- r\_batch\_usage for SLURM

## Features already available

- HPCWORK aware jobs
  - Please use „-C hpcwork“ if you need \$HPCWORK in your job

**Thank you very much for your attention.  
Questions?**