



Using Octave and SageMath on Taito

Sampo Sillanpää
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Octave

- Powerful mathematics-oriented syntax with built-in plotting and visualization tools.
- Free software, runs on GNU/Linux, macOS, BSD, and Windows.
- Drop-in compatible with many Matlab scripts.
- <https://www.gnu.org/software/octave/>



SageMath

- SageMath is a free open-source mathematics software system licensed under the GPL.
- Builds on top of many existing open-source packages: NumPy, SciPy, matplotlib, SymPy, Maxima, GAP, FLINT, R and many more.
- <http://www.sagemath.org/>



Octave on Taito

- Latest version 4.2.1

```
module load octave-env
```

```
octave
```

Or

```
octave --no-gui
```

- Interactive sessions on Taito-shell via NoMachine client

<https://research.csc.fi/-/nomachine>

Octave Forge

- A central location for development of packages for GNU Octave.
- Packages can be installed on Taito

```
module load octave-env
```

```
octave --no-gui
```

```
octave:> pkg install -forge package_name
```

```
octave:> pkg load package_name
```

SageMath on Taito

- installed version 7.6.

```
module load sagemath
```

```
sage
```

- Interactive sessions on Taito-shell via NoMachine client.
- Browser-based notebook

```
sage: notebook( )
```

Octave Batch Jobs

```
#!/bin/bash -l
#mytest.sh
#SBATCH --constraint="snb|hsw"
#SBATCH -o output.out
#SBATCH -e stderr.err
#SBATCH -p serial
#SBATCH -n 1
#SBATCH -t 00:05:00
#SBATCH --mem-per-cpu=1000
module load octave-env
octave --no-gui/wrk/user_name/example.m
used_slurm_resources.bash

[user@taito-login1]$ sbatch mytest.sh
```

SageMath Batch Jobs

```
#!/bin/bash -l
#mytest.sh
#SBATCH --constraint="snb|hsw"
#SBATCH -o output.out
#SBATCH -e stderr.err
#SBATCH -p serial
#SBATCH -n 1
#SBATCH -t 00:05:00
#SBATCH --mem-per-cpu=1000
module load sagemath
sage /wrk/user_name/example.sage
used_slurm_resources.bash

[user@taito-login1]$ sbatch mytest.sh
```


Instructions and Documentation

- Octave
 - <https://research.csc.fi/-/octave>
 - <https://www.gnu.org/software/octave/doc/interpreter/>
- SageMath
 - <https://research.csc.fi/-/sagemath>
 - <http://doc.sagemath.org/>

servicedesk@csc.fi