

# Nov 6th, 2024

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## . PARAM Shavak User Guide

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### ◦ Prerequisites

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- IP address for accessing shavak
- User id on shavak
- SSH installed in your system. ((Most of the systems today have ssh installed by default))

### ◦ Getting access to shavak

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- Open a terminal on your system. If you are using linux/macOS then open terminal, or if you are using a windows machine then open Powershell / Command Prompt.
- Use below command to access shavak. Make sure your machine and shavak is connected with same network.

- ```
ssh username@ip-address
```

- To get gui access with shavak((Open gui app on shavak)), use below command.

- ```
ssh -X username@ip-address
```

- After that you'll be asked to verify your identity or type captcha.
- After performing all the steps, type password of your user and you'll be allowed to enter the user's account on shavak.

### ◦ Installing modules or packages

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#### ■ Using modules

- To list all the modules

- `module avail`

- This will show you all the modules available for you to use.

- To load a module ((Needed to use the module))

- `module load module-name`

- This will load the module on your system.

- You can search for a specific modules on your system using grep.

- `module avail | grep cuda`

- And then load that module.

A terminal window showing the process of finding and loading a CUDA module. The user runs `module avail | grep cuda`, which lists various CUDA versions (7.5 to 12.0) and other modules like `mpich/4.0.2-gcc-11.2.0-qvpy`. The user then runs `module load cuda/12.0`, and the terminal shows the output of `nvcc --version`, indicating that the NVIDIA CUDA compiler driver is loaded successfully.

```
4:55 Wed, Nov 6 ...  
[fdpp48@login02 ~]$ module avail | grep cuda  
cuda/11.4.0-gcc-11.2.0-gfra  
cuda/7.5  
cuda/8.0  
cuda/9.0  
cuda/9.2  
cuda/10.0  
cuda/10.1  
cuda/10.2  
cuda/11.0  
cuda/11.2  
cuda/11.7  
cuda/11.8  
cuda/12.0  
mpich/4.0.2-gcc-11.2.0-qvpy (D)  
oneapi/mkl/2021.4.0 (D)  
oneapi/mkl32/latest (D)  
oneapi/mkl32/2021.4.0 (D)  
oneapi/mpi/latest (D)  
oneapi/mpi/2021.5.0 (D)  
oneapi/oclfga/latest (D)  
oneapi/oclfga/2022.0.0 (D)  
oneapi/tbb/latest (D)  
oneapi/tbb/2021.5.0 (D)  
oneapi/tbb32/latest (D)  
oneapi/tbb32/2021.5.0 (D)  
oneapi/vpl/latest (L,D)  
[fdpp48@login02 ~]$ module load cuda/12.0  
[fdpp48@login02 ~]$ nvcc --version  
nvcc: NVIDIA (R) Cuda compiler driver  
Copyright (c) 2005-2022 NVIDIA Corporation  
Built on Mon_Oct_24_19:12:58 PDT 2022  
Cuda compilation tools, release 12.0, V12.0.76  
Build cuda_12.0.r12.0/compiler.31968024_0  
[fdpp48@login02 ~]$
```

## ■ Using spack

- First you need to load/source the spack.

- `source /home/apps/shavak/share/shavak/setup-env.sh`

- After that `shavak` command will be available for you to use.

- To list available packages

- `spack list`

- To list all the installed packages

- `spack find`

- To use a package first you need to load on your system.

- `spack load package-name`

- There could be multiple version of same package. Above command will only work if you have only one version of a package installed otherwise it will fail and will give hashes of all the versions you have installed in your system.

- To load a specific version.

- `spack load package-name/hash-of-that-package`

- This will load the package for you to use.

- Example

```
4:49 Wed, Nov 6 ...
[fdpp48@login02 ~]$ spack load gcc
==> Error: gcc matches multiple packages.
Matching packages:
zzyga1g gcc@4.8.5%gcc@12.2.0 arch=linux-centos7-cascadelake
zbt0x3v gcc@7.1.0%gcc@13.1.0 arch=linux-centos7-cascadelake
eg372ml gcc@7.5.0%gcc@13.1.0 arch=linux-centos7-cascadelake
f6cmh1hw gcc@8.5.0%gcc@13.1.0 arch=linux-centos7-cascadelake
l6pwim7 gcc@10.3.0%gcc@8.3.0 arch=linux-centos7-skylake_avx512
zww4bw1 gcc@10.3.0%gcc@8.3.0 arch=linux-centos7-skylake_avx512
5y3wi4t gcc@10.4.0%gcc@13.1.0 arch=linux-centos7-cascadelake
fufsigm gcc@11.2.0%gcc@8.3.0 arch=linux-centos7-skylake_avx512
5nqpihw gcc@12.1.0%gcc@11.2.0 arch=linux-centos7-cascadelake
onp3b7s gcc@12.2.0%gcc@8.3.0 arch=linux-centos7-skylake_avx512
xqjtc7g gcc@13.1.0%gcc@8.3.0 arch=linux-centos7-skylake_avx512
qhyc4lh gcc@13.1.0%oneapi@2022.2.1 arch=linux-centos7-cascadelake
mte7zei gcc@13.1.0%gcc@13.1.0 arch=linux-centos7-cascadelake
Use a more specific spec (e.g., prepend '/' to the hash).
[fdpp48@login02 ~]$ spack load gcc/l6pwim7
[fdpp48@login02 ~]$
[fdpp48@login02 ~]$ gcc --version
gcc (Spack GCC) 10.3.0
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This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

[fdpp48@login02 ~]$
```

ESC	/	—	HOME	↑	END	PGUP
⇧	CTRL	ALT	←	↓	→	PGDN

- To unload a package

- `spack unload package-name`