Code01
Assistance with installed software on Code01 and Blueshark HPC

If you need information on connecting to code01.fit.edu or blueshark.fit.edu using SSH, please visit this FAQ: Tech Support Self Help - How to use SSH and SFTP (fit.edu).

NOTE: Access to the blueshark.fit.edu HPC is restricted to authorized users. To request access, please visit this FAQ: Tech Support Self Help - How to request access to the Blueshark Cluster? (fit.edu).

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Package help

Most software has a man(ual) page associated with it. Type **man <package name>** at the shell prompt.

Environment Modules

**Environment Modules** is a software environment management system which allows multiple versions of packages to be available to users.
Common commands

- **module avail** - to list available modules. Modules with (default) will be loaded if a version is not specified.
- **module load <module name>** - to load a module.
- **module help <module name>** - to view module specific help.
- **module unload <module name>** - to unload a module.
- **module list** - to list loaded modules.
- **module --help | -H** - display module command help.

Examples - Using Python and Pip with Environment Modules

Python

Several versions of Python are available using **Environment Modules**, in addition to the default package versions. You can determine what version is available by appending the --version switch to your python command.

**NOTE:** By default the command "**python**" runs the Python 2.x interpreter and the command "**python3**" runs the Python 3.x interpreter.

Python example:

- List current modules.

  ~ $ module list

  No Modulefiles Currently Loaded.

- Show current Python and Python3 versions. Since no Python modules are loaded, they are the OS provided versions.
~ $ python --version
Python 2.7.5

~ $ python3 --version
Python 3.4.5

- List available Python modules. Default module is indicated with (default).

~ $ module avail python
------------------------- /opt/software/modules/ -------------------------
python/2.7.9 python/3.4.2 python/3.5.1(default)

- Load default Python module.

~ $ module load python

- Show Python and Python3 versions. Since only the Python 3.5.1 module was loaded, it was the only version that changed.

~ $ python --version
Python 2.7.5

~ $ python3 --version
Python 3.5.1

- Unload Python module.

~ $ module unload python
Pip and Virtualenv

Pip can also be used with python to install python packages. Virtualenv is available to isolate your packages.

As with Python, pip has different commands for different versions:

- **pip, pip2, and pip2.7** - to install OS maintained Python 2.7 pip packages, or a Python 2.7.x module if loaded.
- **pip3** - to install OS maintained Python 3.4 pip packages.
- **pip3.4** - to install OS maintained Python 3.4 pip packages, or a Python 3.4 version python module is loaded.
- **pip3.5** - to install Python 3.5 pip packages, if a Python 3.5.x module has been loaded.

Pip examples

- List current modules.

  ~ $ module list

  No Modulefiles Currently Loaded.

- Display pip3 and pip3.4 versions. With no Python modules loaded, they use the OS provided version.

  ~ $ pip3 --version

  pip 9.0.1 from /usr/lib/python3.4/site-packages (python 3.4)

  ~ $

  ~ $ pip3.4 --version
pip 9.0.1 from /usr/lib/python3.4/site-packages (python 3.4)

- Load Python 3.4.2 specific module.

  ~ $ module load python/3.4.2

- Display pip3 and pip3.4 versions. Now they show the version from the loaded Python 3.4.2 module.

  ~ $ pip3 --version

  pip 9.0.1 from /opt/software/python/python-3.4.2/lib/python3.4/site-packages (python 3.4)

  ~ $

  ~ $ pip3.4 --version

  pip 9.0.1 from /opt/software/python/python-3.4.2/lib/python3.4/site-packages (python 3.4)

- Display the pip3.5 version. Since a Python 3.5 module is not loaded, the command fails.

  ~ $ pip3.5 --version

  -bash: pip3.5: command not found

- Unload Python 3.4.2

  ~ $ module unload python/3.4.2

- Load the default python module, which currently is Python 3.5.1.

  ~ $ module load python

- Display the pip3 and pip3.5 versions. Now they show the version from the loaded Python 3.5.1 module.

  ~ $ pip3 --version

  pip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)

  ~ $

  ~ $ pip3.5 --version

  pip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)
loaded 3.5.1 Python module.

```bash
~ $ pip3 --version
pip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)
~ $
~ $ pip3.5 --version
pip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)
```

**Installing a pip module into your userspace**

**NOTE:** Be sure to specify the version of Pip you want to use.

```bash
~ $ pip3.5 install --user <pip_module>
Collecting <pip_module>
  Downloading <pip_module>.whl (43.1MB)
    100% |████████████████████████████████| 43.1MB 12kB/s
```

For more information, please see the official web page for [Environment Modules](https://it-faq.fit.edu/it_faq/content/40/377/en/assistance-with-installed-software-on-code01-and-blueshark-hpc.html) or [Wikipedia article](https://en.wikipedia.org/wiki/Python_Package_Index).