Spack_AMD Cheat Sheet

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Prerequisites

1. Python 2 (2.6 or 2.7) or 3 (3.5 - 3.9) to run Spack
2. A C/C++ compiler for building
3. The `make` executable for building
4. The `tar`, `gzip`, `bzip2`, `xz` and optionally `zstd` executables for extracting source code
5. The `patch` command to apply patches
6. The `git` and `curl` commands for fetching
7. If using the `gpg` subcommand, `gnupg2` is required

Specs & dependencies

`@` is optional version specifier (`@1.2:1.4`)	Ex: `amdfftw@2.2`
`%` is optional compiler specifier	Ex: `amdfftw@2.2 %aocc@2.2`
`+` or `-` or `~` are optional variant specifiers for boolean variants	Ex: `+debug`, `-qt`, or `~qt`
`name=<value>` is optional variant specifier	Ex: `amdblis@2.2 threads=openmp`
`name=<value>` is optional compiler flag specifiers	Valid flag names are `cflags`, `cxxflags`, `fflags`, `cppflags`, `ldflags`, and `ldlibs`
`target=<value> os=<value>` are optional architecture specifier	Ex: `target=zen2 os=aocc`
`^` Dependency specs	Ex: `amdfftw ^openmpi@4.0.3`

Configuration

`spack config edit [-h] [--print-file]` section	get and set configuration options, section: `compilers/mirrors/repos/packages/modules/config/upstreams`
`spack config update [-hy]` section	update configuration options

Query packages

`spack info` package	get detailed information on a particular packages are on disk as installed
`spack dependencies` package/package_specs	show dependencies of a package
`spack dependents` package	show packages that depend on another
`spack find [-ldvf] [package]`	list and search installed packages
`spack graph` package/package_specs	generate graphs of package dependency relationships
`spack list`	list and search available packages
`spack location [-i, --install-dir] [-p, --package-dir]` package	print out locations of packages and spack directories
`spack providers` virtual_package	list packages that provide a particular virtual package

Build packages

`spack clean [-a, --all] [-s, --stage] [-p, --python-cache] [package(s)]`	remove temporary build files and/or downloaded archives
`spack gc [-y, --yes-to-all]`	remove specs that are now no longer needed
`spack install [-j, --jobs JOBS] [-v, --verbose] [--cache-only] [--source]` package_specs	build and install packages
`spack setup [-v, --verbose]` package_specs	create a configuration script and module, but don’t build
`spack spec [-l, --long] [-I, --install-status]` package(s)	show what would be installed, given a spec
`spack uninstall [-R, --dependents] [-y, --yes-to-all]` package_specs	remove installed packages

Create packages

spack create [-hfb] [--keep-stage] [-n NAME] [url]	create a new package file, url:url of package archive
spack edit [-h] [package]	open package files in $EDITOR
spack versions [-hs] [-c CONCURRENCY] package	list available versions of a package

Environments

`spack add [-h] [-l LIST_NAME]` package_specs	add a spec to an environment
`spack concretize [-f, --force]`	concretize an environment and write a lockfile
`spack env create [--without-view] env [envfile]`	create virtual environments
`spack env list`	list all virtual environments
`spack env activate [-v, --with-view]`	manage virtual environments
`spack env remove [-hy] env [envfile]`	remove virtual environments

System

`spack arch [-h] [--known-targets] [-p | -o | -t] [-f | -b]`	print architecture information about this machine
`spack compiler find` add_paths	find compilers from given path
`spack compiler remove` compiler_spec	remove given compiler
`spack compiler list` / `spack compilers`	list compilers available
`spack compiler info [-h]` compiler_spec	show compiler information

Developer

`spack cd [-i, --install-dir] [-p, --package-dir]` package_spec	cd to spack directories in the shell
`spack flake8` specific_files_to_check	runs source code style checks on Spack. requires flake8

User environment

`spack load` package_specs	add installed package to the user environment
`spack unload` package_specs	remove package from the user environment

Extensions

`spack activate` installed_spec	activate a package extension on installed package spec
`spack extensions [-s {packages,installed,activated,all}]` package_spec	list extensions for package

More help

`spack docs [-h]`	open spack documentation in a web browser
`spack help [-ha] [--spec] help_command]`	get help on spack and its commands

References

Spack commands	https://spack.readthedocs.io/en/latest/command_index.html#command-reference
Prerequisites	https://spack.readthedocs.io/en/latest/getting_started.html#prerequisites
Specs & dependencies	https://spack.readthedocs.io/en/latest/basic_usage.html#specs-dependencies