

Pulling images

<code>apptainer pull <output.sif> shub://[repository/name/]</code>	Pull sif image from Singularity Hub
<code>apptainer pull <output.sif> docker://[docker_image]</code>	Pull Docker image from Dockerhub or remote container registry
<code>apptainer pull <output.sif> docker-daemon://[image_name]</code>	Pull docker image from local Docker image builds

Before a Docker image can be used by Apptainer, it must be pulled to make it compatible with Apptainer.

Apptainer Cache

<code>apptainer cache list</code>	Show basic details on what is in the local cache
<code>apptainer cache list -v</code>	Lists SIF images stored in the local cache
<code>apptainer cache clean</code>	Remove everything stored in the local cache

By default, Apptainer stores the cache in `$HOME/.apptainer/cache`, but can be changed by modifying the `APPTAINER_CACHEDIR` variable

Executing commands from a image

<code>apptainer exec [SIF_File.sif] <command_to_execute></code>	Execute a command from the image
<code>apptainer run [SIF_File.sif]</code>	Executes the default command for the image
<code>apptainer inspect -r [SIF_File.sif]</code>	Inspect the SIF image and locate the default command
<code>apptainer shell [SIF_File.sif]</code>	Open an interactive shell within the container

Binding host directories to a container

<code>apptainer shell -B /directory/to/add [SIF_File.sif]</code>	Add a directory to the same location in the container
<code>apptainer shell -B /directory/to/add:/new/location/in_container [SIF_File.sif]</code>	Add a directory to a different location in the container

The "-B" argument can apply to the `shell`, `exec`, and `run` sub commands of Apptainer. `shell` is only used as an example. This is referred to as "Binding" the directory inside of the container.

Building Apptainer Images

<code>apptainer build /path/to/output.sif /path/to/input.def</code>	Build a sif image using the .def definition file.
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Apptainer Definition File Keywords

Apptainer	Docker Equivalent	Description
From:	FROM	Base image for the image
%files	ADD	Add files from the host system into the image
%environment	ENV	Add environment variables to the image
%post	RUN	Run commands to build or install software in the image
%runscript	CMD / ENTRYPOINT	What to run when the container is used with <code>apptainer run</code>
%setup		Run commands on the host system before starting the build
%labels	LABEL	Add metadata labels
Bootstrap		Tells Apptainer which type of source the base image will be.

Examples and more information is available at https://apptainer.org/docs/user/main/definition_files.html

