



Singularity Build - 5 min

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Build from Docker

```
# Building a Singularity container (SIF) from DockerHub
$ singularity build python.sif docker://python:latest
...
# Running a shell directly from DockerHub
$ singularity shell docker://ubuntu:latest
Singularity ubuntu_latest.sif:~/demo> cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=18.04
DISTRIB_CODENAME=bionic
DISTRIB_DESCRIPTION="Ubuntu 18.04.1 LTS"
Singularity ubuntu_latest.sif:~/demo> exit
$ singularity exec docker://centos:latest cat /etc/redhat-release
CentOS Linux release 7.5.1804 (Core)
```

Singularity Recipe

- Singularity uses a **recipe** file to describe the contents of the container
- Containers created from prebuilt sources at **DockerHub Sylabs SCS**, **SingularityHub**, or your own repository
- Package, Deploy, Visualize with reproducible results

```
Bootstrap: yum
OSVersion: 7
MirrorURL:<http...>
Include: yum

# If you want updates then uncomment
#UpdateURL:<http...>

%runscript
    echo "This is what happens when you
run the container..."

%post
    echo "Hello from inside the
container"

yum -y install vim-minimal
```

Singularity Recipe - Multistage

```
Bootstrap: docker
From: golang:1.12.3-alpine3.9
Stage: one

%post
    # prep environment
    export PATH="/go/bin:/usr/local/go/bin:$PATH"
    export HOME="/root"
    cd /root

    cat << EOF > hello.go
package main

import "fmt"
func main() {
    fmt.Printf("Hello World!\n")
}
EOF

    # build
    go build -o hello hello.go
```

```
# Install binary into image without go tools
Bootstrap: library
From: alpine:3.9
Stage: two

#install binary from stage one
%files from one
    /root/hello /bin/hello

%runscript
    hello
```