


Create Fenics Image From Docker

Chapter 0: Installation

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 - Fenics version: 2018.1.0
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Run Fenics through Docker Image

Install singularity: <https://singularity.lbl.gov/install-linux>

Ubuntu: `sudo apt install singularity-container`

`singularity --version #3.1`

Built singularity image of latest version of fenics

Image named: `fenics_stable.simg` (581mb)

Build a writable singularity image from docker: ("Writable" means you can install new packages to the container)

```
sudo singularity build --sandbox fenics_stable.simg docker://fenicsproject/stable
```

Install missing packages to a existing and writable container, for example, missing pandas in python3

```
sudo singularity exec --writable fenics_stable.simg pip3 install pandas
```

Mount image

```
(sudo) singularity shell -B $PWD fenics_stable.simg
```

un-mount image

```
exit
```

Check fenics version

```
dolfin-version
```

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Remove image

```
sudo rm -r fenics_stable.simg/
```

Install gmsh as a python package

```
sudo singularity exec --writable fenics_stable.simg pip3 install --  
upgrade gmsh-sdk
```

Use matplotlib with singularity: Singularity can not show image, save it instead:

```
import matplotlib  
matplotlib.use('agg')  
import matplotlib.pyplot as plt  
  
plt.savefig("u.png", bbox_inches='tight')
```