

# Allocate more resources

The screenshot shows the Docker Desktop Preferences window. The 'Resources' section is selected in the left sidebar. The 'Advanced' sub-section is active, displaying four resource allocation sliders:

- CPUs: 8**: A slider set to the maximum value of 8.
- Memory: 8.00 GB**: A slider set to approximately 50% of the total available memory.
- Swap: 2 GB**: A slider set to approximately 25% of the total available swap space.
- Disk image size: 64 GB (36.6 GB used)**: A slider set to approximately 25% of the total available disk space.

At the bottom right of the window, there are two buttons: 'Cancel' and 'Apply & Restart'.

# Mount

```
> mkdir portal  
> docker run -it --name=test --mount type=bind,source="$(  
(pwd)"/portal,target=/portal kmimasu/heptools:mg5_ma5
```

) *one line!*

*Now you are inside the docker Virtual Machine*

```
> cd /home  
> mkdir HEFT_tutorial  
> ls
```



```
[root@d23ca418da90:/home# ls  
HEFT_tutorial software
```

```
> ls /home/software
```



```
[root@d23ca418da90:/home# ls /home/software/  
fastjet logs madanalysis5 mg5amcnlo py.py
```

```
> cd /portal
```

```
> mg5
```

*This directory is mounted on your main file system so you can exchange files through here*

*Its a good place to run mg5 from for this tutorial!*

*Tip: after generating your process in /portal/, you can go in the process directory and open index.html with your browser to access the process information*

# LO Exercise Checklist

Tutorial material on indico <https://indico.ihep.ac.cn/event/13633/contribution/16>

- tutorial\_material.zip: Example mg5/ma5 cards
- Some event samples (LO: SM, cHu=1)

Generate  $pp \rightarrow he^+e^-$  with SMEFTsim

- Start with SM only (NP=0 or  $c_i=0$ )
- 30k events, interfaced with PYTHIA8 (set up to decay  $h \rightarrow b\bar{b}$ )
- Use MadAnalysis5 to convert `hepmc`  $\Rightarrow$  `lhe`
- Write analysis scripts
- Plot  $m_{Zh}$ ,  $p_T^Z$ ,  $N_j, \dots$  distributions
- Determine STXS bin predictions  $\Rightarrow$
- Generate samples for  $C_{Hu}$  &  $C_{HB}$  pure interference & squares

	$\sigma[\text{fb}]$		
$p_T^Z$	Nj=0	Nj=1	Nj>=2
[0,75]			
[75,150]			
...			