

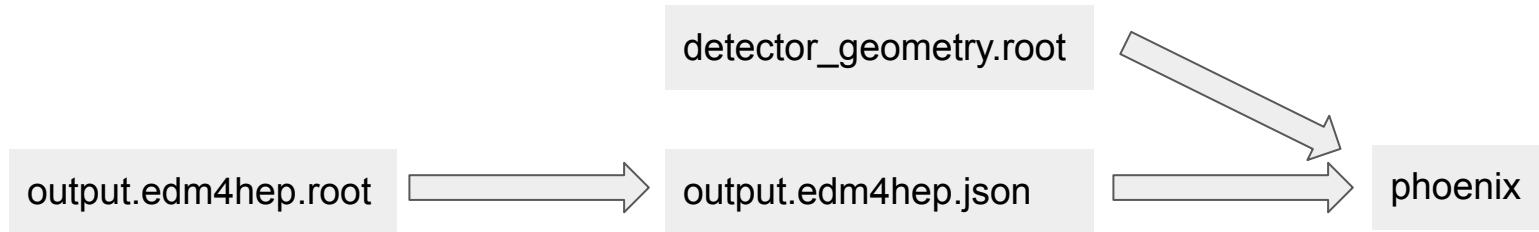
Event Display with HSF/Phoenix

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Phoenix Event Display (<https://github.com/HSF/phoenix>)

Experiment independent web-based event display for High Energy Physics developed and maintained by HEP software foundation.

- Allows loading detector geometry in root or json format.
- Allows loading hit collections or edm4hep objects in json format.
- Web-based playground interface available. But we can also create our own instance.



Step-by-Step Demonstration

Build epic and export desired geometry

```
./eic-shell  
git clone https://github.com/eic/epic  
cd epic  
cmake -DCMAKE_INSTALL_PREFIX=install -S . -B build  
cmake -build build -j 8  
cmake -install build  
source install/setup.sh  
dd_web_display -export epic_tracking_only.xml
```

This will create a geometry file called **detector_geometry.root**

Run test sim

```
ddsim --compactFile epic_tracking_only.xml -G --gun.particle 'pi-' --gun.momentumMin  
'1*GeV' --gun.momentumMax '20*GeV' --gun.distribution 'uniform' -N 2000 --outputFile  
sim_output.edm4hep.root
```

Step-by-Step Demonstration

Converting to JSON format

Requires edm4hep $\geq$ 0.7.2. Currently eic-shell container is at 0.7.0 due to conflicts with root macros. There is a tagged container for testing at this point.

```
singularity pull docker://eicweb/jug_x1:unstable-mr-290-461

singularity run -B <folder containing rootfile> jug_x1_unstable-mr-290-461.sif

edm4hep2json <folder containing rootfile>/sim_output.edm4hep.root -l VertexBarrelHits
-n 100 -o sim_output.edm4hep.json
```

Step-by-Step Demonstration

Building phoenix (Tested with Ubuntu 22.04 LTS)



```
curl -fsSL https://deb.nodesource.com/setup\_lts.x | sudo -E bash -
```

```
sudo apt-get install -y nodejs
```

```
curl -sL https://dl.yarnpkg.com/debian/pubkey.gpg | gpg --dearmor | sudo tee /usr/share/keyrings/  
/yarnkey.gpg >/dev/null
```

```
git clone https://github.com/hsf/phoenix
```

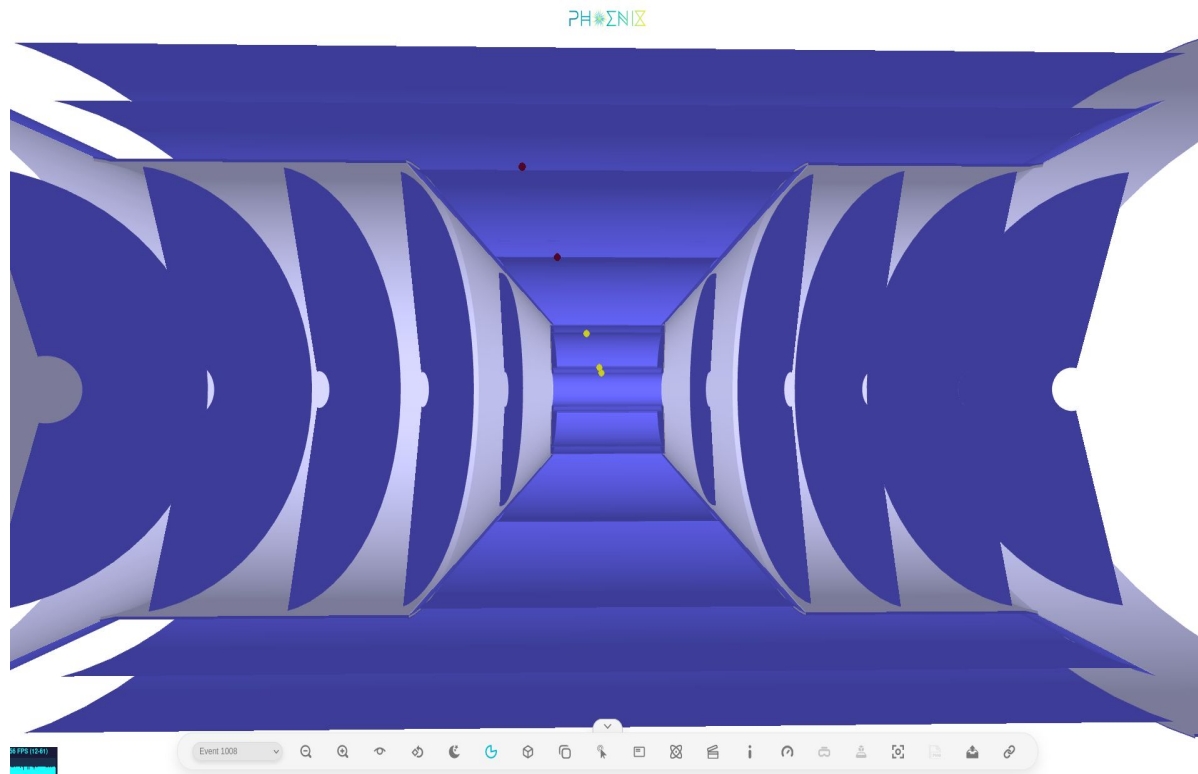
```
cd phoenix
```

```
yarn install
```

```
yarn start
```

Open a browser and go to <http://localhost:4200>

Upload the detector geometry in root or json format and the edm4hep json file to phoenix playground



To Do

- Find a location to host it so that it's easy for collaborators to access it
- Create a default geometry view so that only the event json file is needed to be provided by the user

More information

https://indico.cern.ch/event/916410/contributions/3852667/attachments/2051044/3437881/Phoenix_HSF_04062020.pdf