ILD Event Display

Initial Start for the ILD Event Display

Goal: To get the ILD geometry into a local version of the Pheonix Framework:

- Get a local version of the phoenix framework where we can use the FCC phoenix display app and replace the detector geometry file
- Convert the .xml geometry into .gltf format so it can be read by the phoenix application
- Decide which parts of the detector should be shown in the display

Converting the Geometry

Going from .xml -> .root -> .gltf:

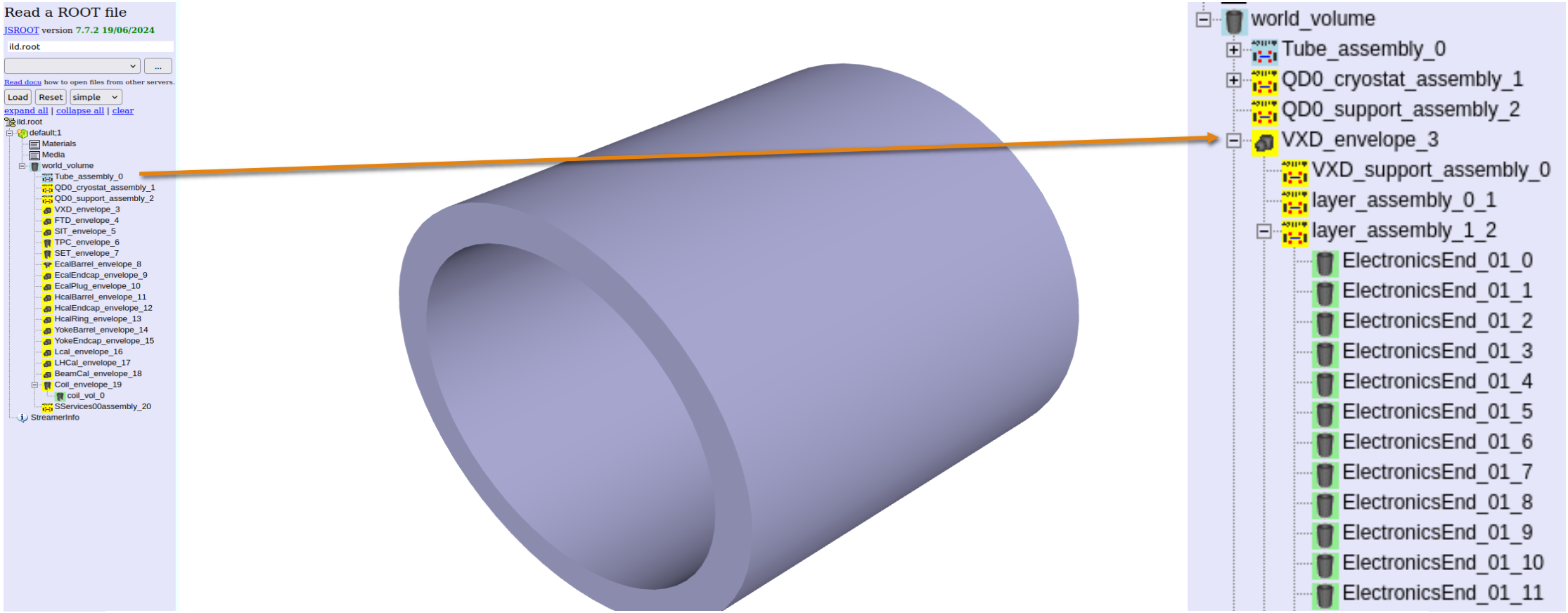
- For .xml -> .root: use the dd4hep2root script in the code lines:

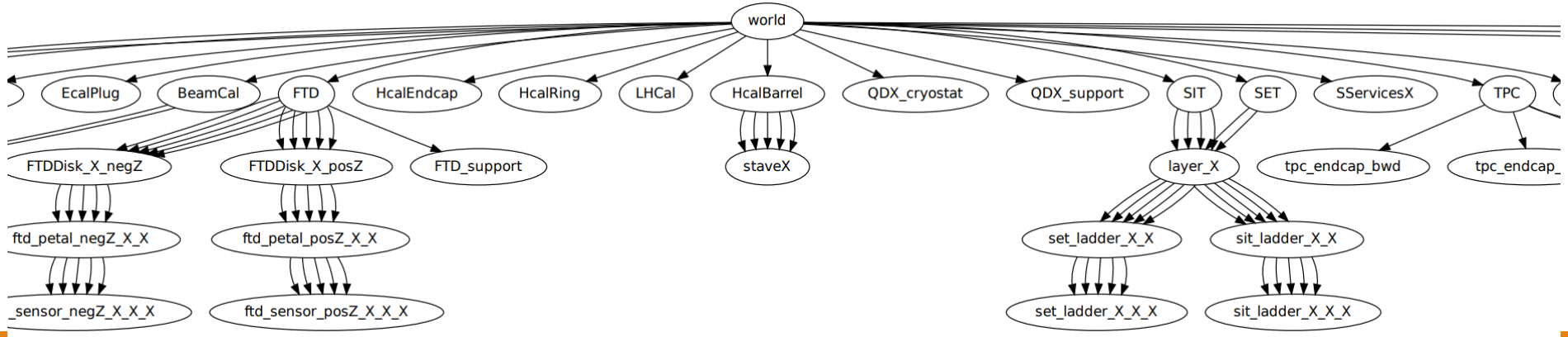
```
wget https://fccsw.web.cern.ch/fccsw/tutorials/static/python/dd4hep2root
```

```
chmod u+x dd4hep2root
```

```
./dd4hep2root -c ${FCCDETECTORS}/Detector/DetFCCeeIDEA-LAr/compact/FCCee_DectEmptyMaster.xml \
                 ${FCCDETECTORS}/Detector/DetFCCeeECalInclined/compact/FCCee_ECalBarrel.xml
              -o fccee_lar.root
```

- Then can visualise the root file on JSROOT (shown above) or alternatively, using python dd4hep_drawer (shown below) which separates the detector into different parts:


Read a ROOT file
JSROOT version 7.7.2 19/06/2024
ild.root
Read docu how to open files from other servers.
Load
Reset
simple
expand all | collapse all | clear
ild.root
default;1
Materials
Media
world_volume
Tube_assembly_0
QD0_cryostat_assembly_1
QD0_support_assembly_2
VXD_envelope_3
FTD_envelope_4
SIT_envelope_5
TPC_envelope_6
SET_envelope_7
EcalBarrel_envelope_8
EcalEndcap_envelope_9
EcalPlug_envelope_10
HcalBarrel_envelope_11
HcalEndcap_envelope_12
HcalRing_envelope_13
YokeBarrel_envelope_14
YokeEndcap_envelope_15
Lcal_envelope_16
LHCal_envelope_17
BeamCal_envelope_18
Coil_envelope_19
coil_vol_0
SServices00assembly_20
StreamerInfo
world_volume
Tube_assembly_0
QD0_cryostat_assembly_1
QD0_support_assembly_2
VXD_envelope_3
VXD_support_assembly_0
layer_assembly_0_1
layer_assembly_1_2
ElectronicsEnd_01_0
ElectronicsEnd_01_1
ElectronicsEnd_01_2
ElectronicsEnd_01_3
ElectronicsEnd_01_4
ElectronicsEnd_01_5
ElectronicsEnd_01_6
ElectronicsEnd_01_7
ElectronicsEnd_01_8
ElectronicsEnd_01_9
ElectronicsEnd_01_10
ElectronicsEnd_01_11


world
EcalPlug
BeamCal
FTD
HcalEndcap
HcalRing
LHCal
HcalBarrel
QDX_cryostat
QDX_support
SIT
SET
SServicesX
TPC
FTDDisk_X_negZ
FTDDisk_X_posZ
FTD_support
staveX
layer_X
tpc_endcap_bwd
tpc_endcap_
ftd_petal_negZ_X_X
ftd_petal_posZ_X_X
set_ladder_X_X
sit_ladder_X_X
_sensor_negZ_X_X_X
ftd_sensor_posZ_X_X_X
set_ladder_X_X_X
sit_ladder_X_X_X

.root -> .gltf

These visualisations were important to understand what geometry sections were in the dectector for the conversion from .root to .gltf using the root2gltf repository.

Firstly need to edit the config files to contain the relevant geometry for ILD.

Then use the package to convert the .root file into a .gltf file:


```
[harrison@naf-ilc21 root2gltf]$ node . -c configs/config_ild_trial2.json
-o /afs/desy.de/user/h/harrison/summerstudent_naf/g_conversion/ild_v01.gltf
/afs/desy.de/user/h/harrison/summerstudent_naf/g_conversion/ild.root
```