

Weekly update

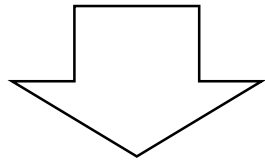
Yubo Han

Outline

- Updating the Geometry source file

Geometry description

Source files: `**/*.cpp`



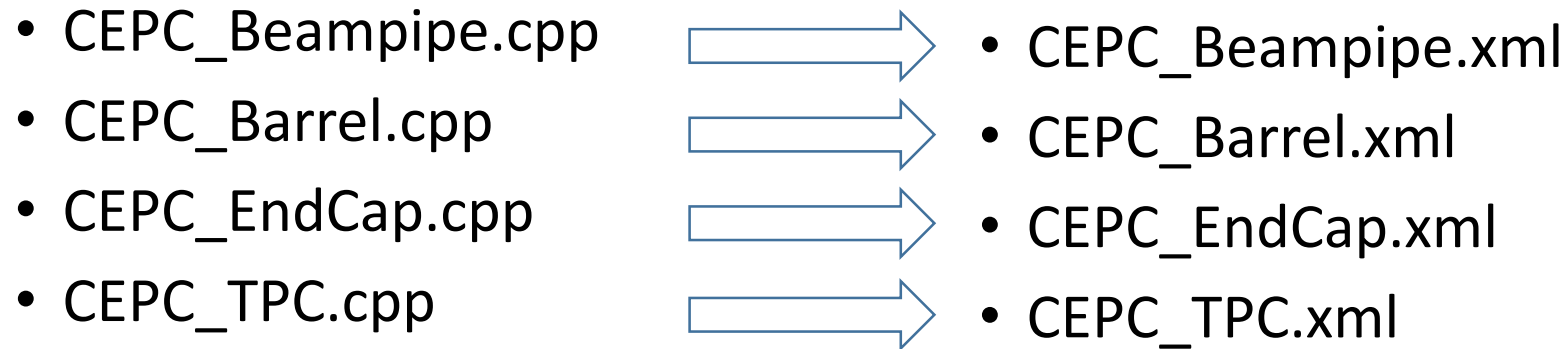
Xml files:
`cepc_master_v04.xml`

- Place where you defining how you wanted to assemble the detector
- Could be different depends on experiment
- The input parameters to the source file

“Template” + “instantiation”

The updated source file for CEPC

Before



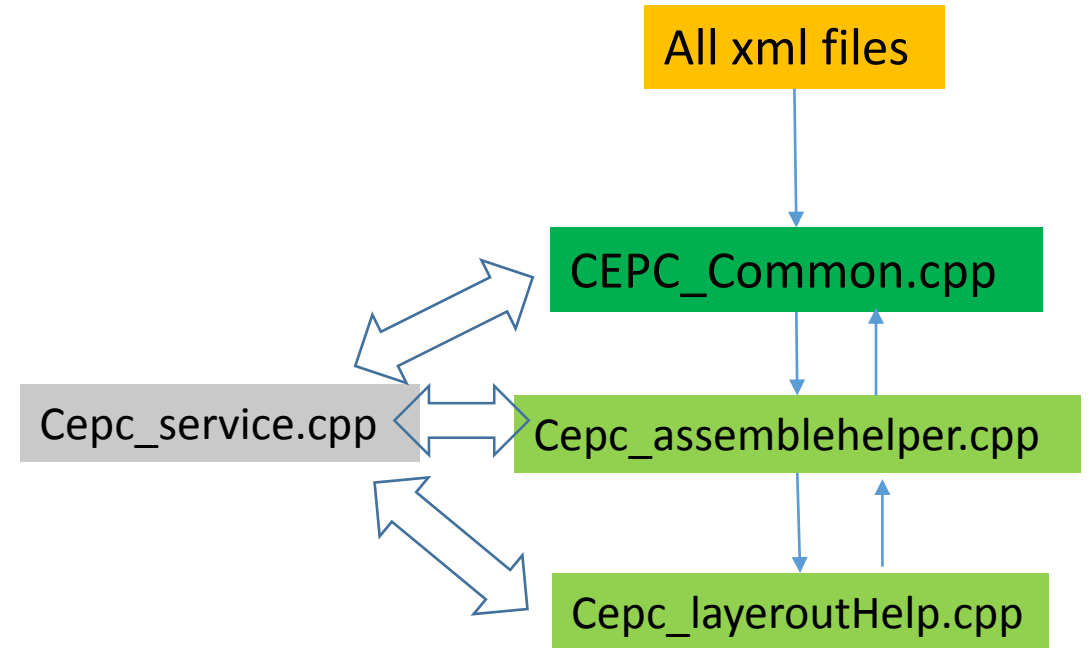
- Independent source files -> repeat code, main information hard to find
- No dedicated code for adding various materials
- ...

The updated source file for CEPC

Updated

- CEPC_Common.cpp
- CEPC_assemblehelper.cpp
- CEPC_layouthelper.cpp
- CEPC_service.cpp

- More efficiency code
- Processes in separated function, reusable and easy to debug
- Flexible material and flexible place to add them
- ...



The updated source file for CEPC

CEPC_Common.cpp

- The main interface to the xml file
- Decide the input detector type (barrel or endcap) and call the corresponding functions
- But not able to implement both endcap and barrel in the same time (could be done in xml file) restricted by the readout and maybe the ActsExtension ...

CEPC_assemblehalper.cpp

- Assemble three kind of geometries
 1. module with module component
 2. Barrel layer with modules (first stave then the whole barrel)
 3. Endcap disk with modules(only)
- Allow tile and offset

The updated source file for CEPC

CEPC_layoutHelper.hpp

- Two classes defined;
 - LayerConfigure (xml_comp_t x_layer, xml_comp_t x_module)
 - RingConfigure (xml_comp_t x_disk, xml_comp_t x_module)

Calculating the details of how to assemble the current layer

Where you could change you method of placement

CEPC_service.hpp

- Decoration the detector's material
- Could be add at "any layer" of the detector's definition(detector, layer, module)

The updated source file for CEPC

CEPC_service.hpp

- Decorations_materials
- Relate_2_volume

<service>

<Addition name="", x_offset="", y_offset="", z_offset="" shape="tube", rmin="", rmax="", length="" />

<Subtraction x_offset="", y_offset="", z_offset="", x_rotation="", y_rotation="", z_rotation="", shape="Trapezoid", x1="", x2="", thick1="", thick2="" />

<Addition name="", x_offset="", y_offset="", z_offset="" shape="tube", rmin="", rmax="", length="" />

<union x_offset="", y_offset="", z_offset="", x_rotation="", y_rotation="", z_rotation="", shape="Trapezoid", x1="", x2="", thick1="", thick2="" />

<Addition name="", x_offset="", y_offset="", z_offset="" shape="tube", rmin="", rmax="", length="" />

<intersection x_offset="", y_offset="", z_offset="", x_rotation="", y_rotation="", z_rotation="", shape="Trapezoid", x1="", x2="", thick1="", thick2="" />

Next : update the xml files