

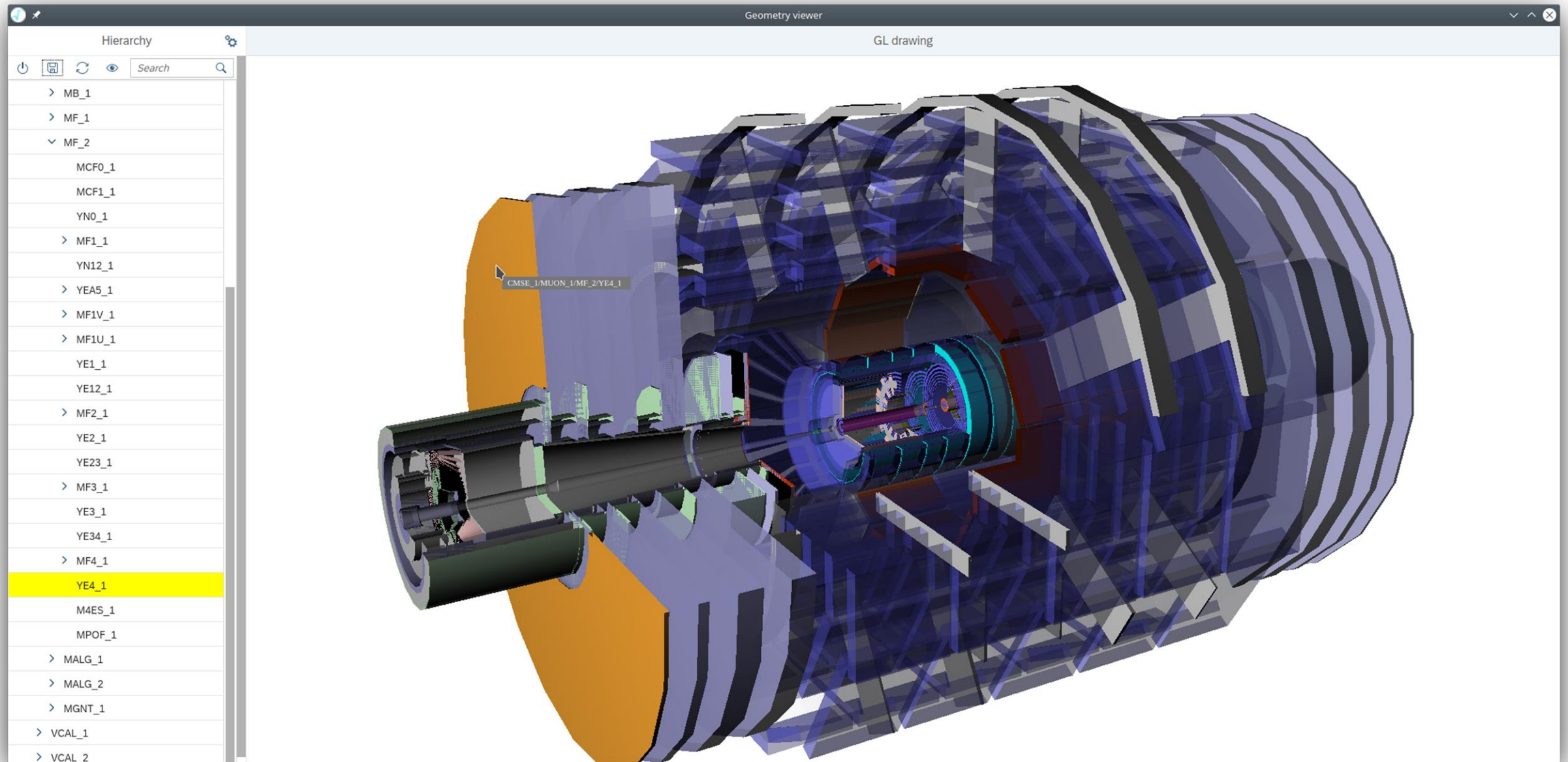
New geometry viewer in ROOT

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Why?

- Lots of functionality in JSROOT
 - but limited performance
- Eve7 with support of server-sides shapes
 - main server-side code for 3D rendering is there
- Hierarchy browser from RBrowser
 - navigation through nodes hierarchy
- Combine all together and implement geometry viewer

Screenshot



Easy to use

```
// load geometry

using namespace ROOT::Experimental;

auto viewer = std::make_shared<REveGeomViewer>(gGeoManager);

// select volume to draw
viewer->SelectVolume("CMSE");

// specify JSROOT draw options - here clipping on X,Y,Z axes
viewer->SetDrawOptions("clipxyz");

// set default limits for number of visible nodes and faces
// when viewer created, initial values exported from TGeoManager
viewer->SetLimits();

// start web browser
viewer->Show();

// add to global heap to avoid immediate destroy of RGeomViewer
RDirectory::Heap().Add("geom_viewer", viewer);

// complete example: \$ROOTSYS/tutorials/eve7/viewer.C
```

Browsing nodes hierarchy

- Use hierarchy display from RBrowser

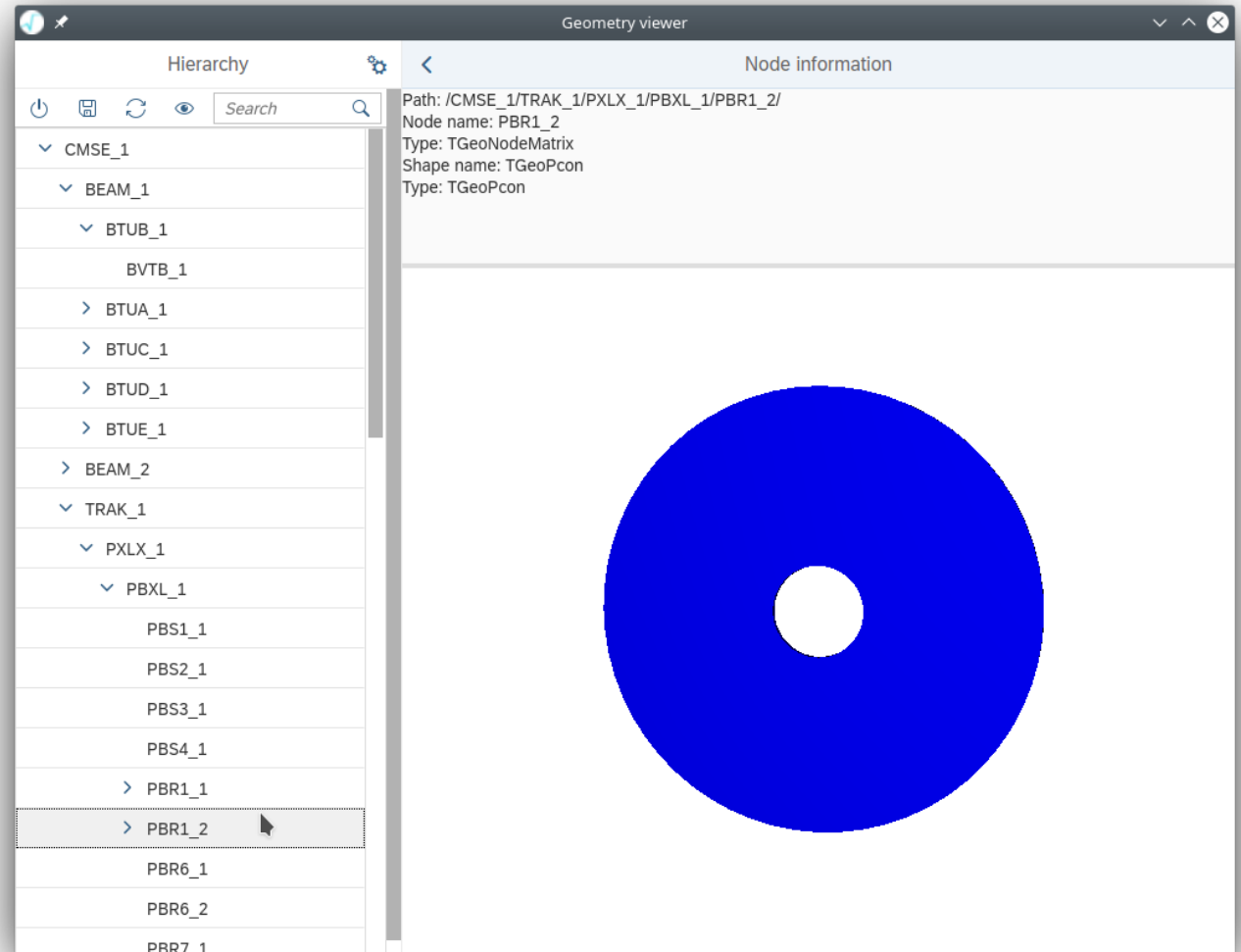
- scalable
- load only visible items

- Individual items draw

- minimal type info

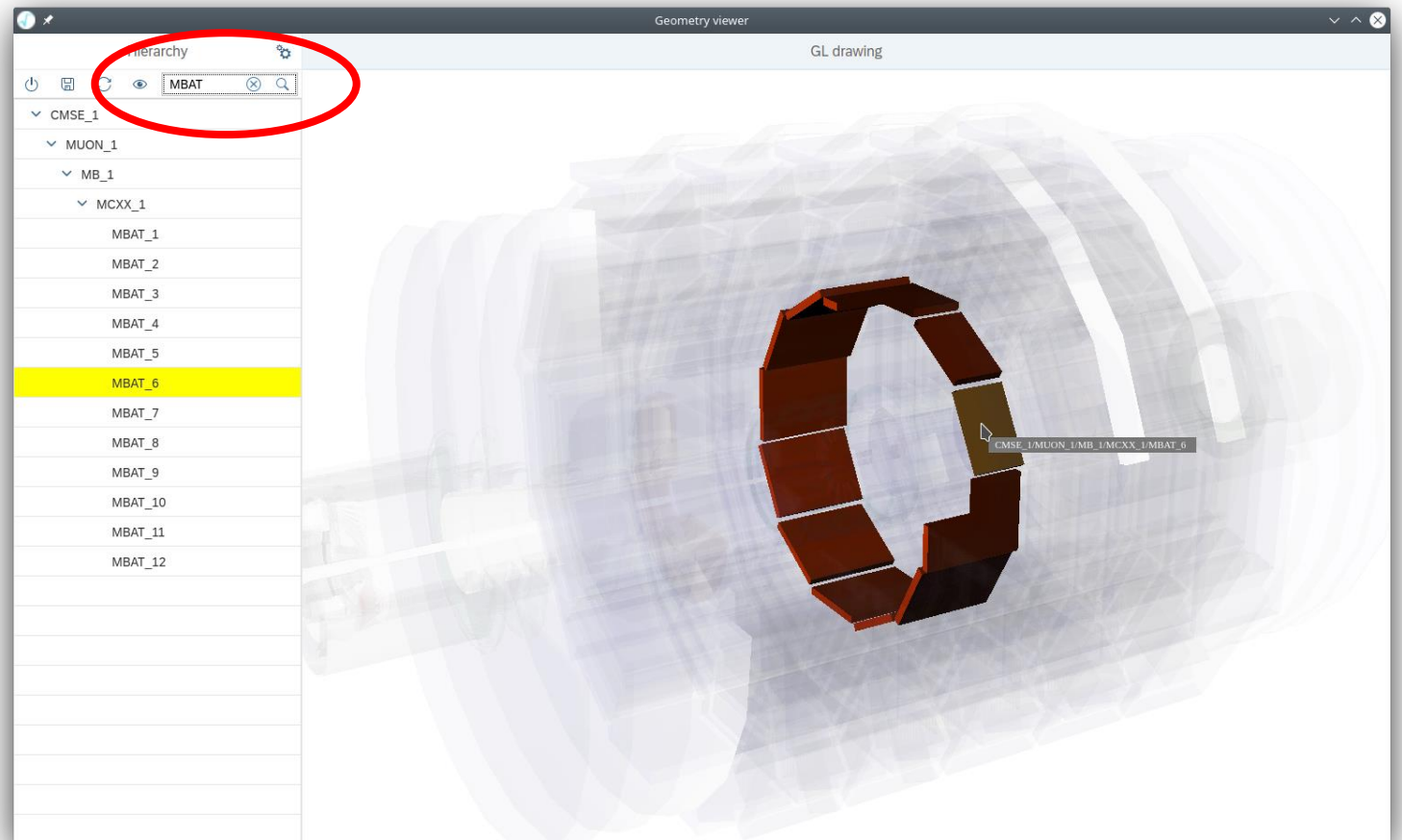
- To do:

- node/volume/shape info



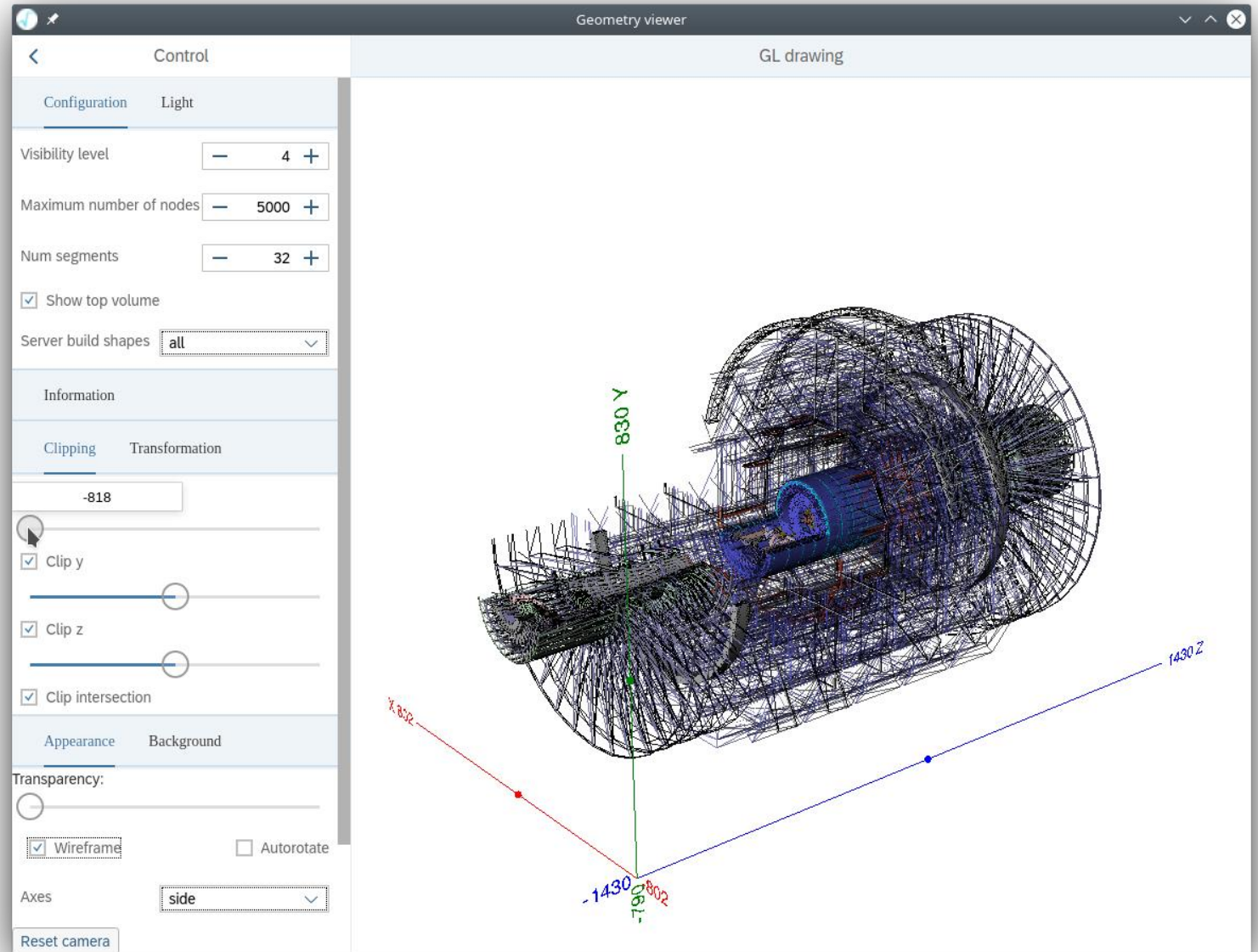
Search nodes by name

- Show results as:
 - hierarchy
 - highlight in drawing

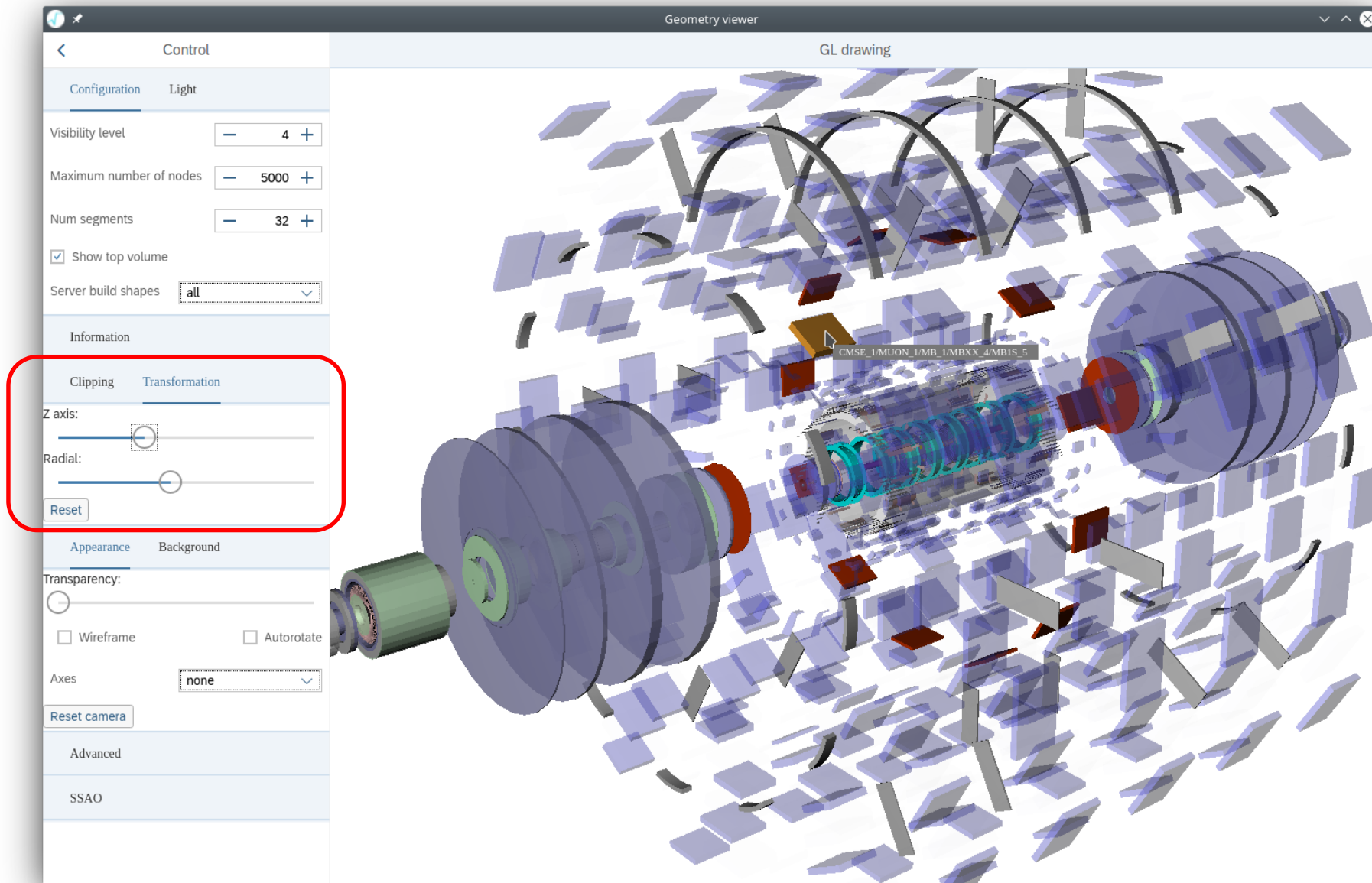


Configuration

- Visibility level
- Scene lights
- Clipping
- Transparency
- Wireframe
- Axes
- Background
- ...



Detector „transformation“



Offline usage

- Only client-side code is preserved
 - ROOT server just prepares data and stores on disk
- Exactly same look and feel
 - not for free, missing server code should be provided by client
- Can be used for outreach
- Example:
 - <https://linev.github.io/geomCMS/>

Status and plans

- Viewer can be used with any existing geometry
 - ROOT should be compiled with `-Droot7=ON`
- See tutorials:
 - `tutorials/eve7/viewer.C`
 - `tutorials/geom/webdemo.C`
- Plans:
 - integrate into RBrowser
 - support overlaps
 - more details on info page
- Any feedback is welcome!