Open Inventor Qt Viewer

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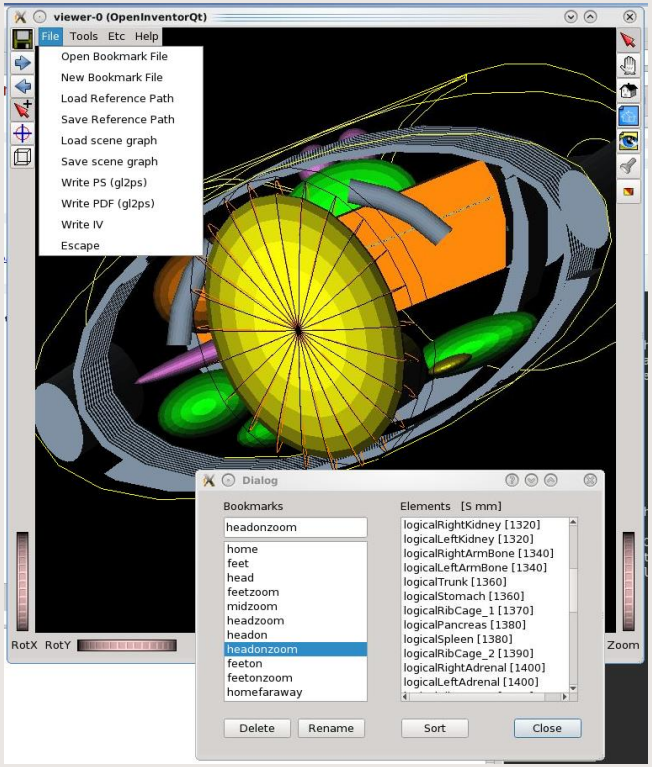
The new Qt-based viewer (OIQt) is complete with all the required features

- Meets or exceeds the functionality of the older OIX and OIXE viewers
- Removes the dependency on obsolescent Xt and Xm (Motif) libraries
- Requirements are: Qt5, OpenGL, and Coin3d libraries. On MacOS the native OpenGL can be used and no X11 or Mesa libraries (XQuartz) are required.
- Available to try in 11.0 Beta; some minor additions are being done for Release 11.
- The Coin3d libraries (Coin 4.0.0 and SoQt 1.6.0) can be installed system-wide via a package manager (Linux) or brew (MacOS). They can also be built from source by cloning repositories from https://coin3d.github.io/ and following the build instructions.

What is this viewer useful for?

- Bookmarking: similarly to a web browser, any 3d view can be "bookmarked" and revisited later with a single mouse-click.
  - Changing views consists of just changing the camera settings, so the viewer remains fully functional at all times.
  - Bookmarks are shown in a clickable editable list and are stored in a file for use in later runs. When developing a geometry or debugging a simulation, it is easy to return to view specific parts of the detector and nearby particle trajectories.
  - Cycling through the bookmarks results in a "slide show" where each slide is fully 3d-interactive – useful for presentations using screen sharing.



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What is this viewer useful for …(continued)

- Fast and precise navigation: moving the camera along a “reference path”
  - A reference path is defined as a selected particle trajectory or generally as a list of 3d coordinate triples, loadable from a file.
  - Geometry elements are ordered according to their perpendicular distance from the path (most useful for extended structures such as beam lines) and are displayed in a clickable list for quick navigation to any element.
  - Buttons for stepping through the elements and for 90-degree rotations around the reference path. “Flyover” animation feature moves the camera smoothly along the path, with speed and elevation controls.
- Other: seek function to re-center the view on any geometry element; mouse-over readout of volumes and trajectories; PS and PDF output (the latter with transparency). The viewer can be hosted in the Qt UI panel (as with the OGL viewer), or detached as a self-contained viewer in a resizable window (e.g. for full-screen use in a second monitor).

Remarks and plans

- The transition to Qt allows reduced 3rd party library dependencies, especially on MacOS, and should make it easier for users to access this viewer.
- A Qt-based viewer allows easy integration into the Qt UI, with unified event management of mouse and keyboard input. The way is open for further development.
- Plans:
  - Application support for reference path definition and other navigation modes.
  - Investigate packaging of Coin3d libraries for ease of access by users.
  - Promote the use of different easily-switchable viewers in the G4 Examples.