

Report from parallel session 2B

Laurent Garnier OSUR / INSU / CNRS

Geant4 Collaboration Meeting – Chicago – 2 Oct 2015

Update on G4UIQt

The screenshot displays the G4UIQt application window titled "exampleB5". The interface is divided into several panels:

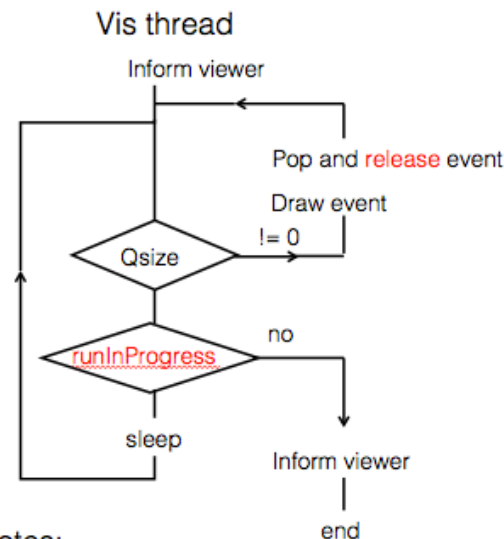
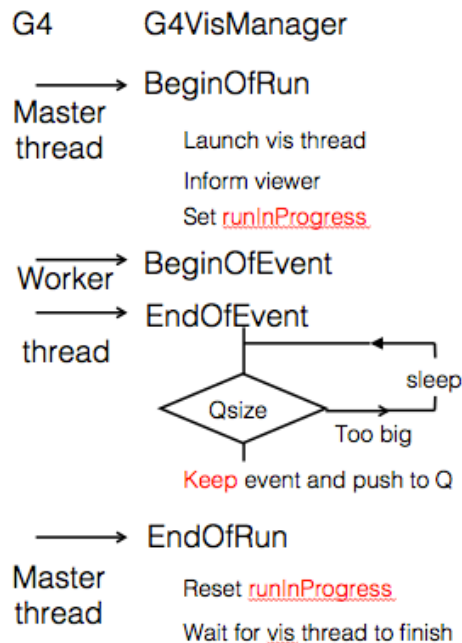
- Scene tree:** A hierarchical tree view on the left showing the scene structure. It includes a search bar and a list of objects with checkboxes. The "Scene tree : viewer-0 (OpenGLStoredQt)" section shows a tree with "worldPhysical [0]", "firstArmPhysical [0]", and "fSecondArmPhys [0]". Under "fSecondArmPhys [0]", there are several "hodoscope2Physi..." objects, all of which are checked.
- Viewer properties:** A table of properties and their values for the viewer. The table is as follows:

Property	Value
autoRefresh	True
auxiliaryEdge	False
background	0 0 0 1
culling	1
cutawayMode	union
defaultColour	1 1 1 1
defaultTextColour	0 0 1 1
edge	True
explodeFactor	1 1 mm
globalLineWidthScale	1
globalMarkerScale	1
hiddenEdge	False
hiddenMarker	False
lightsMove	object
lightsThetaPhi	54.7356 45 deg
lightsVector	1 1 1
lineSegmentsPerCi...	24
picking	False
projection	perspective 30 deg
- 3D Viewport:** The central area showing a 3D visualization of a particle detector. It features a blue rectangular block, a yellow cylindrical component, a series of green rectangular planes, and a white cylindrical detector with red vertical lines on its top surface. A yellow dashed line represents a particle track passing through the detector.
- Output:** A terminal window at the bottom showing the execution of the G4WT0 thread. The output is as follows:

```
G4WT0 > Thread-local run terminated.
G4WT0 > Run Summary
G4WT0 >   Number of events processed : 1
G4WT0 >   User=0.1s Real=0.11s Sys=0.01s
G4WT0 > ... merge Root all h1 : - done
G4WT0 > ... merge Root all h2 : - done
G4WT0 > ... write Root file : B5_t0.root - done
G4WT0 > ... close Root file : B5_t0.root - done
```

Vis thread

Vis flow diagram - multithreaded mode



Notes:

- Queue is `std::deque<const G4Event*>`
- Appropriate locks are used for pushing and popping, reading `Qsize` and setting and resetting `runInProgress`
- "Keep" and "release" refer to messages to the run manager (new feature)

Qt driver issues

- **Qt5 installation problem (on mac):**

cmake **-DCMAKE_PREFIX_PATH**=/where_is_qt (libs, bin
and includes source_dir

- **Crash at runtime on Linux+Qt5 (exampleB1 and other)**

QWidget::setVisible(bool) () from /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5
G4UIQt::SessionStart() () from /home/gate/Progs/Geant4/geant4.10.01.p02-
install/lib/libG4interfaces.so

⇒ Serious problem for Linux users

⇒ Laurent will run Geant4 on Linux to try to solve this

⇒ A solution has been found by users, but not tested

Testing vis

- Testing vis by hand is painfull
- No much effort to do it with ctest
 - Should run without any graphic card (in batch mode-
⇒ **Xvfb library** need to ne installed.
 - ⇒ Generalize this library for all tested platforms in Cdash ?
 - You should roduce « screenshot » of what you want
 - Compare them to references
 - A « test » example is provide with **test202**
- Generalize vis test for all examples ?

Discussion

Lots of topics :

- ⇒ **Save/restore** viewpoints
- ⇒ Ability to **fly-through** the scene
- ⇒ **Magnetic fields** visualization, could be improve
- ⇒ **Newer OpenGL** version
- ⇒ Produce **image files in batch jobs**=> have to be documented
- ⇒ Making **more video tutorials** ? YouTube account ?