Table of Contents

Gauss Upgrade Recipes

This page will be updated as the Gauss versions evolve.

Setting up Gauss Enviornment

Setup Gauss Enviornment

Setting up Beam Configuration

Setup Beam Configuration for Gauss

Detector Geometry options for Upgrade

As of Sept 2012 one can use the following options. Some examples of using these options are listed below for Gauss v42r2 onwards.

Location	Original	Upgrade
Velo	"Velo", "PuVeto"	"VP" XOR "VL"
Magnet	True	"Magnet"
TT	"TT"	"UT"
Tracking	"IT", "OT"	"FT"
Riches	"Rich1", "Rich2"	"Rich1Pmt", "Rich2Pmt"
Calorimeters	"Spd", "Prs", "Ecal", "Hcal"	"Ecal", "Hcal"
Muon	"Muon"	"MuonNoM1"

Vertex Detector (Velo)

Current Velo ---- 'PuVeto', 'Velo' Velo Lite ---- 'VL' Velo Pixel ---- 'VP'

RICH

Two RICHs with PMTs --- 'Rich1Pmt' , 'Rich2Pmt'

Upstream Tracking System besides Velo

Current TT ----- 'TT' Upstream Tracker ----- 'UT'

Downstream Tracking System

Current IT+OT ----- 'IT', 'OT' Fibre Tracker ------ 'FT'

Calorimeter System

Current Calorimeter ----- 'Spd', 'Prs', 'Ecal', 'Hcal' Upgrade Calorimeter ----- 'Ecal', 'Hcal'

Muon System

Current Muon ----- 'Muon' Upgrade Muon ----- 'MuonNoM1'

Examples of activating different geometry options for Upgrade

Examples of Gauss Options for Detector Geometry

Known Error Messages

TORCH

The TORCH geometry has not been defined, however some code expects parts of the structure to be accessible. This results in the following non-fatal error:

```
TorchTBMcpProperties      ERROR Can't retrieve
/dd/Structure/LHCb/AfterMagnetRegion/TorchTBMasterDet for anode param
```

Aerogel

The Aerogel blocks have been removed from the detector description, however some of the Gauss code still expects those specific logical volumes to be present. This results in the appearance of 16 non-fatal error messages, one for each block. The error messages are of the following format:

`GiGa.GiGaMgr.GiGaRegi...  ERROR GiGaRegionsTool::  process('Rich1AerogelRegion'): G4LogicalVolume* '/dd/Geometry/!BeforeMagnetRegion/Rich1/lvRich1AerogelT0' points to NULL, skip it   StatusCode=FAILURE` To avoid seeing these messages printed, a temporary solution is to comment out all the lines in the file ../Sim/Gauss/xml/Rich1AerogelRegionDefinition.xml.

Running with Boole

Note that this is a temporary location for this information until a better place can be found.

Running with Boole is extremely similar to Gauss: all the detector options are activated in the same way and have the same names. Note the 'Tr' and 'MC'.

Example: $APPCONFIGOPTS/Boole/Boole-Upgrade-Reference.py

```
from Gaudi.Configuration import *
from Configurables import CondDB
CondDB().Upgrade     = True

from Configurables import Boole
Boole().DetectorDigi = ['Velo', 'TT', 'IT', 'OT', 'Rich1Pmt', 'Rich2Pmt', 'Spd', 'Prs', 'Ecal', '
Boole().DetectorLink = ['Velo', 'TT', 'IT', 'OT', 'Rich1Pmt', 'Rich2Pmt', 'Spd', 'Prs', 'Ecal', '
Boole().DetectorMoni = ['Velo', 'TT', 'IT', 'OT', 'Rich1Pmt', 'Rich2Pmt', 'Spd', 'Prs', 'Ecal', '
```

See Examples of Gauss Options for Detector Geometry for details on how to use Local tags to activate specific geometries.

Running with Brunel

Note that this is a temporary location for this information until a better place can be found.

Running with Brunel however has some differences: all the detector options are activated in the same way and have the same names BUT only certain combinations are possible.

All the currently-possible configurations are defined in $APPCONFIGOPTS/Brunel/Brunel-Upgrade-*

Example: $APPCONFIGOPTS/Brunel/Brunel-Upgrade-Reference.py

```
from Gaudi.Configuration import *
from Configurables import CondDB

CondDB().Upgrade     = True
from Configurables import Brunel
Brunel().Detectors = ['Velo', 'PuVeto', 'Rich1Pmt', 'Rich2Pmt', 'TT', 'IT', 'OT', 'Spd', 'Prs', '
```

See Examples of Gauss Options for Detector Geometry for details on how to use Local tags to activate specific geometries.

-- PaulSzczypka - 21-Jun-2013

This topic: LHCb > GaussUpgradeRunRecipes
Topic revision: r11 - 2014-01-21 - SajanEaso