

Various News From Detector Description

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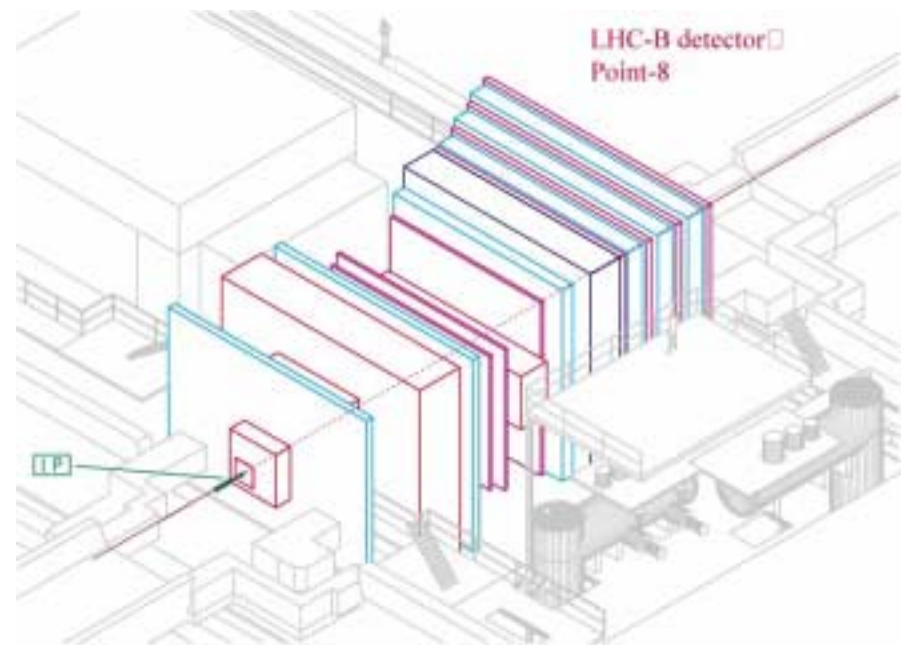


Topics

- ◆ **DetDesc package**
 - DetectorElement extension
 - XmlParserSvc caching
- ◆ **XmlEditor**
 - Improvements
 - Usage for Gaudi data definition
- ◆ **Panoramix**
 - Improvements
 - Problems
- ◆ **Documentation provided**

Detector Description

Detector Element Extension
XmlParserSvc Caching





Detector Element Extension

3 ways :

- ◆ **UserParameter and userParameterVector**
 - simple parameters with name and value
- ◆ **Extending the C++ objects**
 - allows full customization of the object
 - still data come from userParameters
- ◆ **Full customization**
 - allows extension of the XML DTD
 - requires implementation of a converter
 - requires maintenance for the converter



The Preferred Way : 2nd One

- ◆ Free extension of the `DetectorElement` class
- ◆ Specific initialization using `initialize()`
 - called after conversion
 - access to `userParameters`
- ◆ Still you need a converter but here is the code

```
#include "DetDesc/XmlUserDetElemCnv.h"  
#include "MyDetElem.h"  
  
static CnvFactory  
  <XmlUserDetElemCnv<MyDetElem> > s_factory;  
const ICnvFactory& XmlMyDetElemCnvFactory = s_factory;
```



XmlParserSvc Caching

Why

- ◆ Avoids parsing several times the same file
- ◆ Especially in case you get every element of a catalog, the file was parsed once per element

How

- ◆ Keeps a certain number of parsed files in memory
- ◆ Fully transparent



Cache Configuration

Two job options :

- ◆ **XmlParserSvc.MaxDocNbInCache**
 - default is 5
- ◆ **XmlParserSvc.CacheBehavior**
 - 0 → First In, First Out policy
 - ∞ → Keep most reused
 - n → If reused every n time and enough place, stays forever
 - default is 2

XmlEditor

Improvements
Usage for Gaudi Data
Definition





XmlEditor Improvements

- ◆ **Node/Attribute creation/deletion**
- ◆ **File creation**
- ◆ **Copy/paste, drag and drop**
- ◆ **Undo/redo (infinite)**
- ◆ **Icons for every element in the current DTD**
 - you can even define your own ones
- ◆ **Automatic startup script**
 - `$XMLEDITORROOT/scripts/xmlEditor(.bat)`



About File Creation

Either by hand :

- ◆ **you must provide a DTD**
- ◆ **you must provide a main tag name**

Or by using predefined types

- ◆ **structure, material and geometry are known**
- ◆ **you can define your own types**



Gaudi Data Definition

XmlEditor is generic

→ you can use it for Gaudi Data Definitions

Still some problems with current version :

- ◆ no icons**
- ◆ no default file type created**
- ◆ references can be created while they are meaningless**

A new release will come soon



Gdd



Package



Class



Import



Base



Constructor



Destructor



Method



Arg



Return



Code



Attribute



Relation



Desc

LHCb Xml Editor

File Edit Option Help

/home/sponce/mycmt/Event/LHCbEvent/v11/xml/LHCbEvent.xml

File Option

Tree View

- gdd
 - LHCbEvent
 - AxPartCandidate
 - MCParticle
 - ContainedObject
 - constructor
 - destructor
 - threeMomentum
 - Arg arg
 - return
 - code
 - fourMomentum
 - pID
 - pIDConfLevel
 - Mother...

method

| Attributes | Values |
|------------|-----------------------------|
| access | PUBLIC |
| const | FALSE |
| desc | Retrieve the three momentum |
| inline | FALSE |
| static | FALSE |
| type | void |
| virtual | FALSE |

Event

MCHitBase

MCTrackingHit

MCParticle

MCVertex

Panoramix

Improvements
Problems





Panoramix Improvements

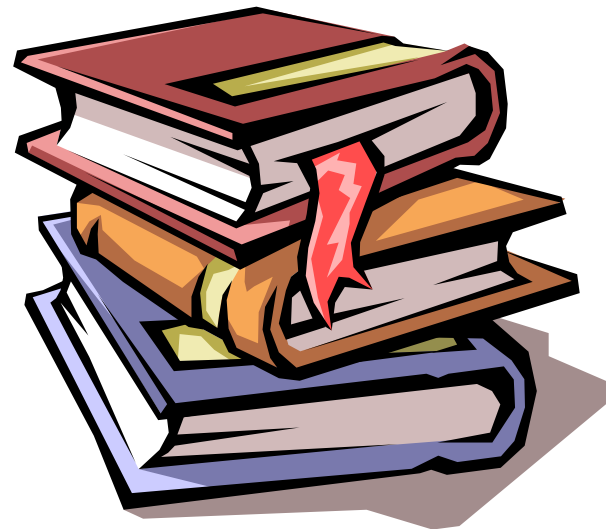
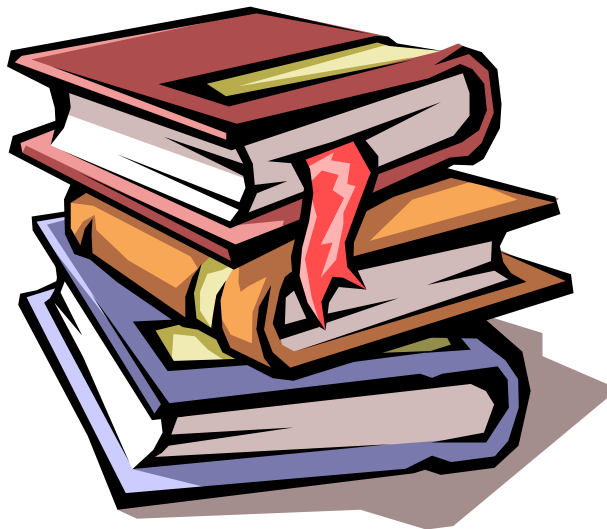
- ◆ **GaudiLab → Panoramix**
 - See Guy's talk
- ◆ **Starting scripts**
 - \$PANORAMIXROOT/scripts/panoramix(.bat)
 - -noevent option
 - No more event displaying
 - but a (very) fast startup
 - ideal for geometry development
- ◆ **Stability improved in v1r1**



Panoramix Problems

- ◆ **Optimization required for big geometries**
 - load on demand
 - avoid duplication of identical volumes
- ◆ **“Reload XML” would be appreciated**
- ◆ **Many problems with the boolean processor**
 - Many unimplemented cases
 - Some ghost shapes appear after subtraction
- ◆ **→ may be dropped soon**

Documentation Provided





Documentation (1)

- ◆ **Gaudi User Guide**
 - **Chap 9 : Detector Description**
- ◆ **Gaudi code documentation**
 - **Doxygen**
- ◆ **XmlEditor Documentation**
 - **User guide**
 - **Code documentation (Javadoc)**



Documentation (2)

- ◆ **Specific documents**
 - “Extending detector elements and implications”
 - “The LHCb detector description DTD”
- ◆ **Advanced Tutorial**
 - Slides + Notepages
 - Exercises + corrections (Tutorial/Detector)

<http://lhcb-comp.web.cern.ch/lhcb-comp/Frameworks/DetDesc/default.htm>