EIC LXR Code Browser

NPPS Meeting

September 25, 2020

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LXR Service at BNL

- **LXR** output is **dynamic**, the html is generated on-the-fly.
- BNL provides LXR code browsing services for ATLAS collaboration for ~ 15 years
  - Managers: Alex Undrus, Shuwei Ye
  - See this NPPS presentation for details
- 6 git branches (daily updates) and selected stable releases
  - https://acode-browser1.usatlas.bnl.gov
- EIC LXR code browser is recently created
  - https://eic-code-browser.sdcc.bnl.gov
  - Most recent LXR version 2.3.5
  - EIC git repository, master branch
    - Same packages as at EIC Doxygen
  - With improvements and optimizations developed by Shuwei Ye

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Source Navigation

EIC code displayed by LXR

master/EicRoot/eic/calorimetry/EicCalorimeterDigiHitProducer.cxx

File indexing completed on 2020-09-22 18:46:02

```
0001  //
0002  // AYK (ayk@bnl.gov), 2013/06/13
0003  //
0004  //   Calorimeter digi hit producer c
0005  //
0006
0007  //#include <stdlib.h>
0008  #include <assert.h>
0009  #include <cmath>
0010
0011  #include <TGeoNode.h>
0012  #include <TRotation.h>
0013  #include <TParticlePDG.h>
0014  #include <TMath.h>
0015  #include <TRandom.h>
0016  #include <TDatabaseP   .h>
0017
0018  #include <FairRunAna.h>
0019  #include <FairRuntimeDb.h>
0020
0021  #include <EicLibrary.h>
0022  #include <EicGeoPar.h>
0023  //#include <EicFakeMoCaPoint.h>
0024  #include <EicCalorimeterDigiHitProducer.h>
```

Links to internal headers - feature developed by Shuwei Ye

```
043  #if _LATER_
044  int EicCalorimeterDigiHitProducer::UseFakeMoCaPointDatabase(const char *dbFileName, UInt_t energyBinNum)
045  {
046  #if _OLD_
047    TString expandedFileName(dbFileName);
048
049    // Correct path if needed;
050    if (!expandedFileName.BeginsWith("./") && !expandedFileName.BeginsWith("/"))
051    {
052      TString wrkDir = getenv("VMCWORKDIR");
053
054      expandedFileName = wrkDir + "/input/" + expandedFileName;
055    } //if
056
057    TFile dbFile  expandedFileName);
058  #else
                     ut/", ExpandedFileName(dbFileName));

              ee which will hold entries;
             (TTree*)dbFile.Get(mDetName->Name() + "EicFakeMoCaPointDatabase"); assert(dbTree);
064
065    // Alocate   ffer variable; think on split, etc; later;
066    EicFakeMoCaPointDbEntry *dbEntry = new EicFakeMoCaPointDbEntry();
```

Links to identifier search

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Identifier Search

Identifier: EicDetName ☐ Definitions only Find

All references for all types of identifiers (variable, class, function)

Definitions for EicDetName

Type	Member of	File	Line
function definition	EicDetName	/EicRoot/eic/base/EicDetName.cxx	13
class		/EicRoot/eic/base/EicDetName.h	14
function definition	EicDetName	/EicRoot/eic/base/EicDetName.h	18
function prototype or declaration	EicDetName	/EicRoot/eic/base/EicDetName.h	23
class		/EicToyModel/include/EicDetName.h	14
function definition	EicDetName	/EicToyModel/include/EicDetName.h	18
function prototype or declaration	EicDetName	/EicToyModel/include/EicDetName.h	23
function definition	EicDetName	/EicToyModel/source/eicroot/EicDetName.cxx	13

8 declarations in 4 files.

References to EicDetName

File	Line			
/EicRoot/eic/base/EicDetName.cxx	13	13	32	
/EicRoot/eic/base/EicDetName.h	14	18	23	43
/EicRoot/eic/base/EicDetector.cxx	62			
/EicRoot/eic/base/EicDetector.h	235	270		
/EicRoot/eic/base/EicDigiHitProducer.cxx	37			
/EicRoot/eic/base/EicDigiHitProducer.h	97			
/EicRoot/eic/base/EicGeoParData.cxx	76			

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General Search

Files named: `DST`

☑ Advanced (allows usag

Or containing: `Reader_EIC`

Characters ^ $ \ [ ] ( ) | , ; ~ have special meaning for Glimpse and can be used for build
☐ Case-sensitive   [Search]

Powered by _Glimpse_ (external to LXR indexing tool). That is the LXR engine creates two sets of indexes: Glimpse and LXR indexes

Powered by Glimpse. (Tips for search syntax.)

4 occurences found.

Results for Reader_EIC

File	Line	Text
fun4all_macros/common/G4_DSTReader_EICDetector.C	48	`void G4DSTreader_EICDetectorInit() {}`
	49	`void G4DSTreader_EICDetector(const string &outputFile = "G4sPHENIXCells.root")`
fun4all_macros/macros/g4simulations/G4_DSTReader_EICDetector.C	45	`void G4DSTreader_EICDetectorInit() {}`
	46	`void G4DSTreader_EICDetector(const string &outputFile = "G4sPHENIXCells.root")`

Version Comparison

(not yet available on EIC browser as it has only one version indexed)

Diff markup

between **/athena/Control/AthenaPython/AthenaPython/PyAthenaAlg.h** (Version: 21.3)
and **/athena/Control/AthenaPython/AthenaPython/PyAthenaAlg.h** (Version: head)

```
0001 /////////////////////// -*- C++ -*- ///////        0001 /////////////////////// -*- C++ -*- ///////////////////////////
0002                                                      0002
0003 /*                                                   0003 /*
0004    Copyright (C) 2002-2017 CERN for the benefi ‼️    0004    Copyright (C) 2002-2019 CERN for the benefit of the ATLAS collaboration
0005 */                                                   0005 */
0006                                                      0006
0007 // PyAthenaAlg.h                                     0007 // PyAthenaAlg.h
0008 // Header file for class PyAthena::Alg               0008 // Header file for class PyAthena::Alg
0009 // Author: S.Binet<binet@cern.ch>                   0009 // Author: S.Binet<binet@cern.ch>
0010 ///////////////////////////////////////////         0010 /////////////////////////////////////////////////////////////
0011 #ifndef ATHENAPYTHON_PYATHENAALG_H                   0011 #ifndef ATHENAPYTHON_PYATHENAALG_H
0012 #define ATHENAPYTHON_PYATHENAALG_H                   0012 #define ATHENAPYTHON_PYATHENAALG_H
0013                                                      0013
0014 // STL includes                                      0014 // STL includes
0015 #include <string>                                    0015 #include <string>
0016                                                      0016
0017 // FrameWork includes                                0017 // FrameWork includes
0018 #include "AthenaBaseComps/AthAlgorithm.h"            0018 #include "AthenaBaseComps/AthAlgorithm.h"
0019 #include "AthenaPython/IPyComponent.h"           >>  0019 #include "AthenaPython/IPyComponent.h"
                                                          0020 #include "CxxUtils/checker_macros.h"
0020                                                      0021
0021 // Forward declaration                               0022 // Forward declaration
0022 // Python                                            0023 // Python
```

Two examples of many improvements at BNL LXR (by Shuwei Ye)

- Links to header files
- In case multiple cases of the same filenames are found in the whole project, and the attempt fails to find the one with closest subdir matching the source file to include it, a new link to search for that included filename is created

Results for

File	Line	Text
fun4all_coresoftware/offline/packages/PHGenFitPkg/PHGenFit/Track.h		
fun4all_coresoftware/offline/packages/PHTpcTracker/Track.h		
fun4all_coresoftware/offline/packages/trackbase/TrkrTrack.h		
fun4all_coresoftware/offline/packages/trackbase_historic/SvtxTrack.h		
fun4all_coresoftware/offline/packages/trackreco/ActsTrack.h		
fun4all_acts/Core/include/Acts/Vertexing/LinearizedTrack.hpp		
fun4all_acts/Examples/Framework/include/ActsExamples/EventData/ProtoTrack.hpp		
fun4all_acts/Examples/Framework/include/ActsExamples/EventData/Track.hpp		
fun4all_GenFit/core/include/Track.h		
fun4all_GenFit/fitters/include/KalmanFitterRefTrack.h		

```
0001  #pragma once
0002  #include <phgenfit/Track.h>
0003  #include <fun4all/Fun4AllDstInputManager.h>
0004  #include <fun4all/Fun4AllDstOutputManager.h>
0005  #include <fun4all/Fun4AllDummyInputManager.h>
0006  #include <fun4all/Fun4AllInputManager.h>
```

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Plans for EIC LXR

- Fix some broken links
  - E.g. the Glimpse reference
- Arrange daily updates - <mark>Done - Oct 1, 2020</mark>
  - In such a way that both Shuwei and Alex can manage them
- Fix small problems per user requests
  - E.g. caused by erroneous or odd syntax