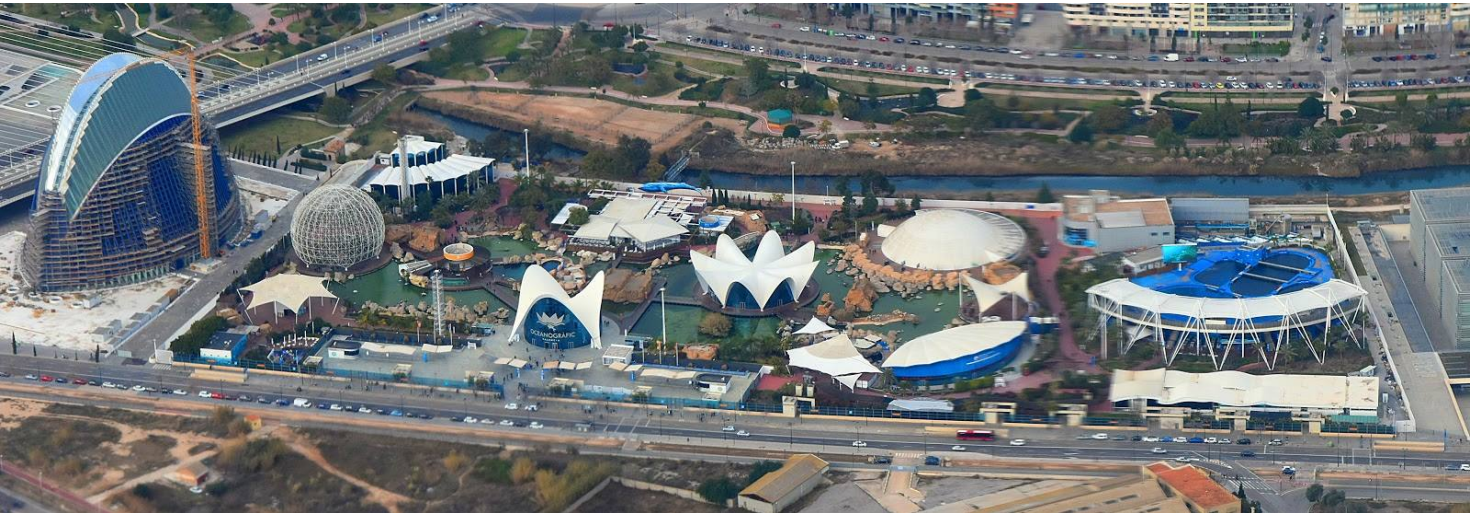
# Event Index Core

## (Hadoop & HBase)

- Import
- Compression
- Graphical Web Service



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*Grigorij Rybkin*
*Rainer Toebbicke*
*Ruijun Yuan*

*EI WS, 12-13 Feb 2018, Valencia*

# Import

- No problems
- Completely automatic
  - Incl. creation of derived structures, testing and re-tries in case of a problem

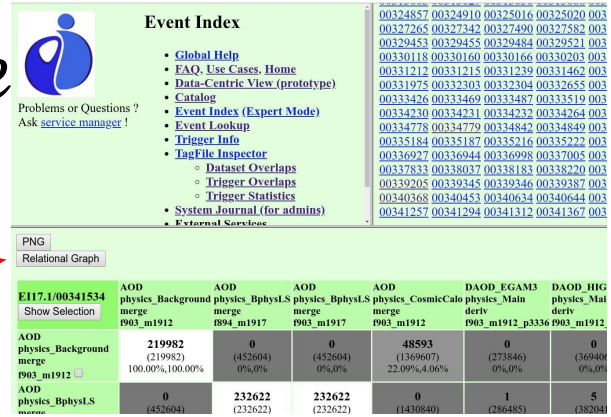
```
IMPORTED EVENTS
===============
EI 2009        34 444 939
EI 2010     1 196 985 327
EI 2011     1 844 680 412
EI 2012     3 313 189 845
EI 2013       331 475 303
EI 2014       436 763 032
EI 2015    38 124 797 422 (was 38 527 094 863)
EI 2016    63 645 397 516 (was 63 203 930 561)
EI 2017    22 009 950 323 (was 17 004 632 956)
MC 2012           300 000
MC 2015    29 091 443 614 (was 28 763 092 958)
MC 2016     5 990 694 947 (was  3 825 805 416)
ALL          > 166 billion events (was 158)
```

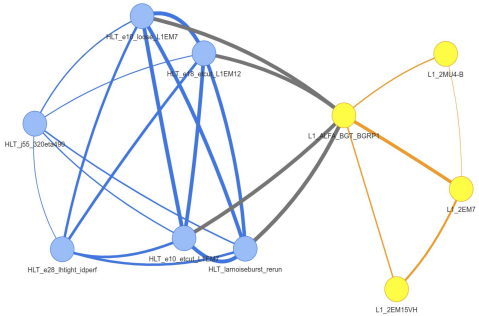
# Compression

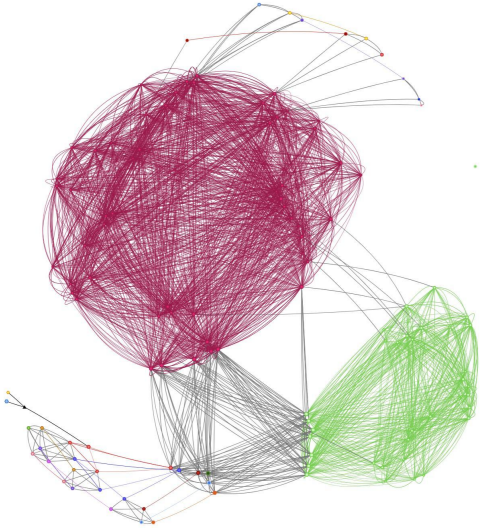
- We are creating BLOCK compressed TagFiles
- All tools work
  - Thanks to fix by Grigori
- Factor of 5-10 compression
- Can start compressing already imported files

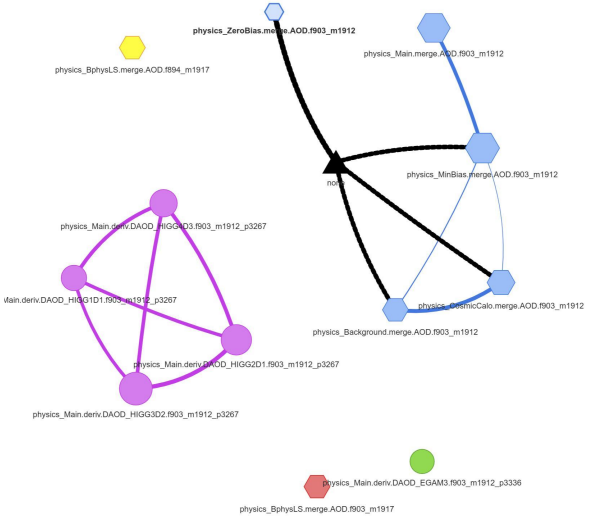
# Graphical Web Service

- A completely new way of navigation in dataset space & EI services
- Fully graphical, interactive & dynamical
- First version fully implemented for overlap tables (Dataset overlaps & Trigger overlaps)
- Demo of the top-level also available
- Evolving



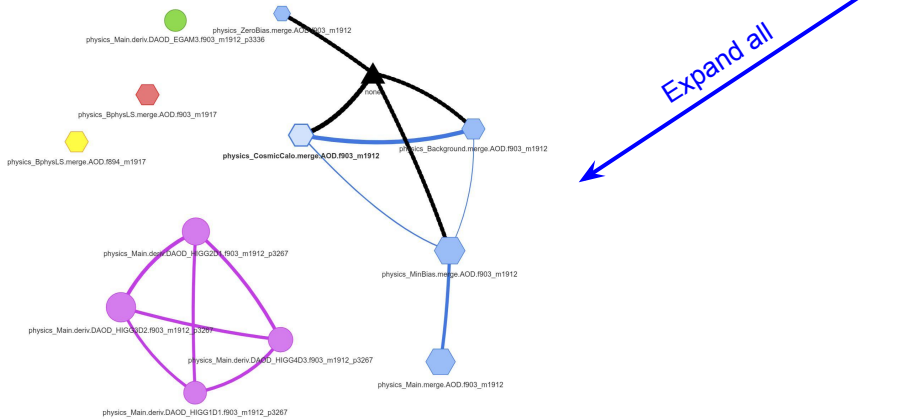





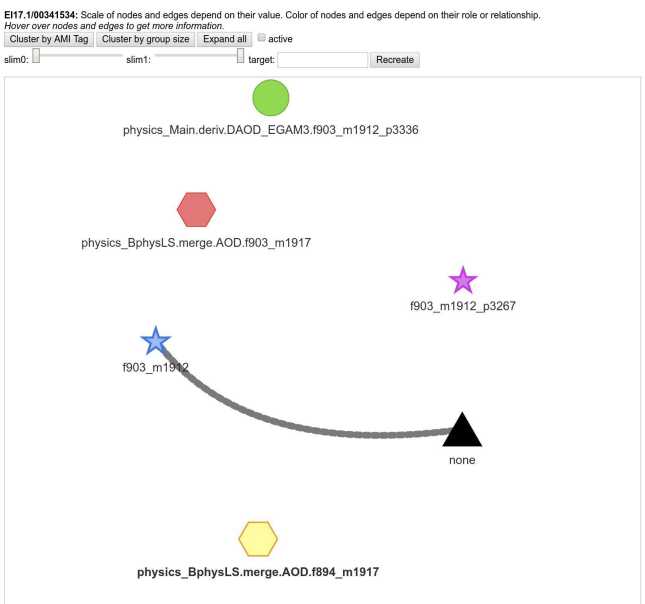


# Graphical Web Service - Symbols

- A dataset or a collection of datasets represented by a symbol
  - AOD dataset is an hexagon
  - Other datasets are circles
  - Collections of datasets are stars
    - E.g. all datasets with the same AMI tag
- Relations between datasets are represented by lines
- Similar for triggers

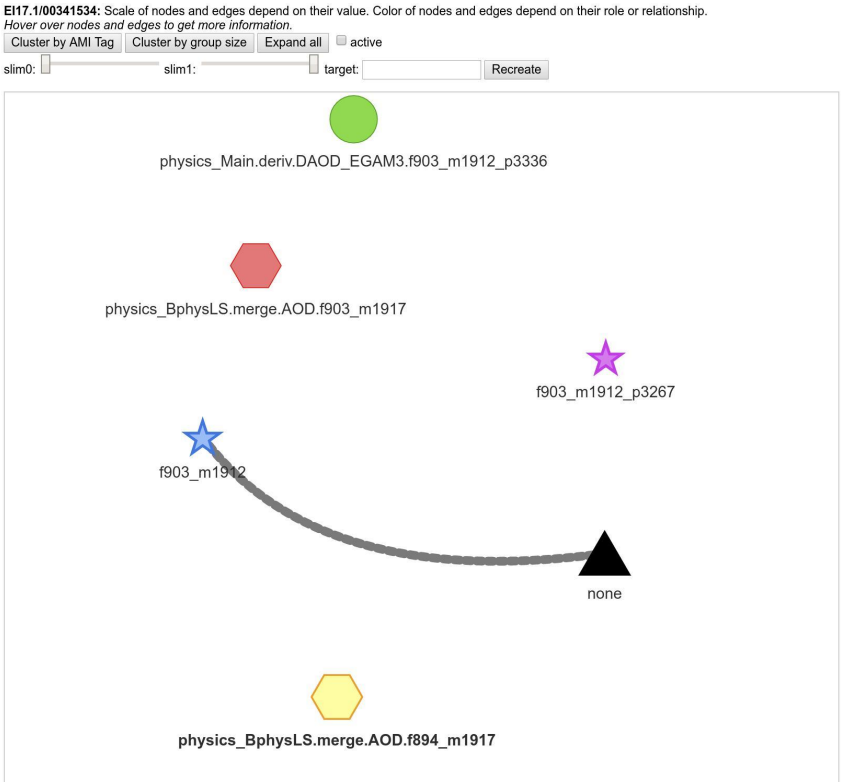



Expand all



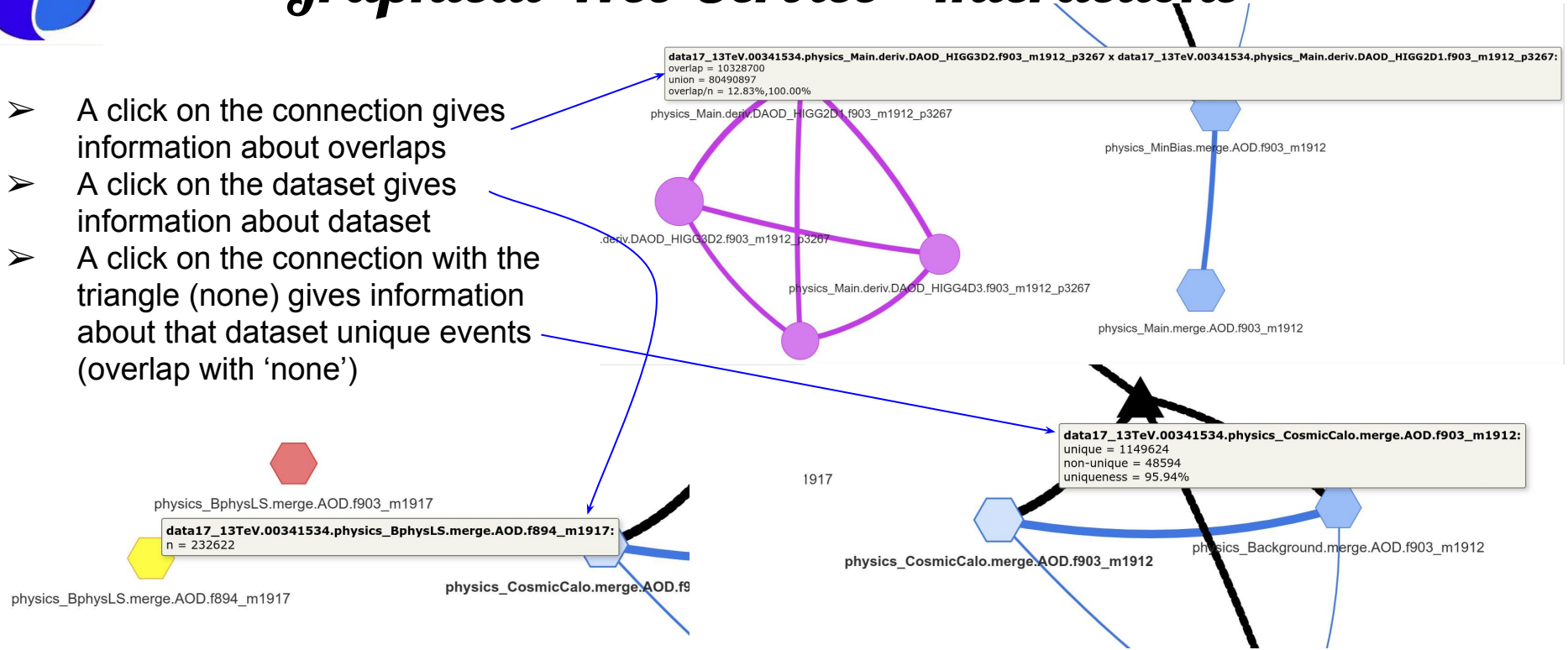
# Graphical Web Service - Properties

- User can choose the presentation threshold - the lower limit of % overlap between datasets with the same AMI tag (slim0) or different AMI tags (slim1)
  - Overlaps within the same AMI tag are represented by the line with the color corresponding to that AMI tag, other overlap lines are grey, overlap line with “none” are black dashed
- User can choose a ‘target’ string - all connections to all dataset containing that string in their names will be shown
- A collection of datasets (represented by a star) is expanded on a click (or “Expand all” button)
- A “moving” graph can be frozen with “active’ button
- Object properties (symbol size, line width,...) correspond to data properties (number of events in a dataset, overlap/union ratio,...)



# Graphical Web Service - Interactions

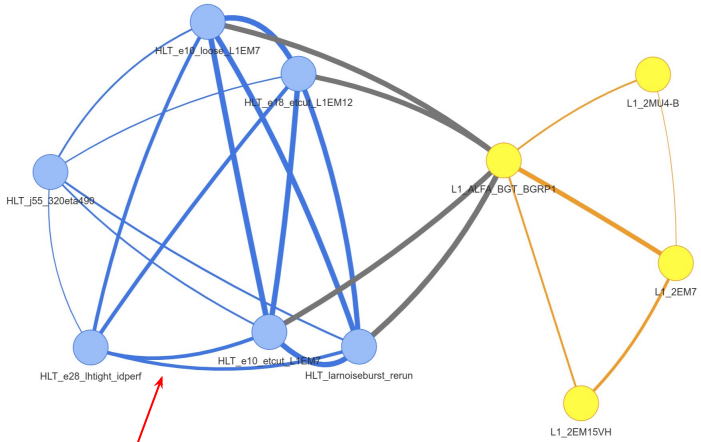
- A click on the connection gives information about overlaps
- A click on the dataset gives information about dataset
- A click on the connection with the triangle (none) gives information about that dataset unique events (overlap with 'none')

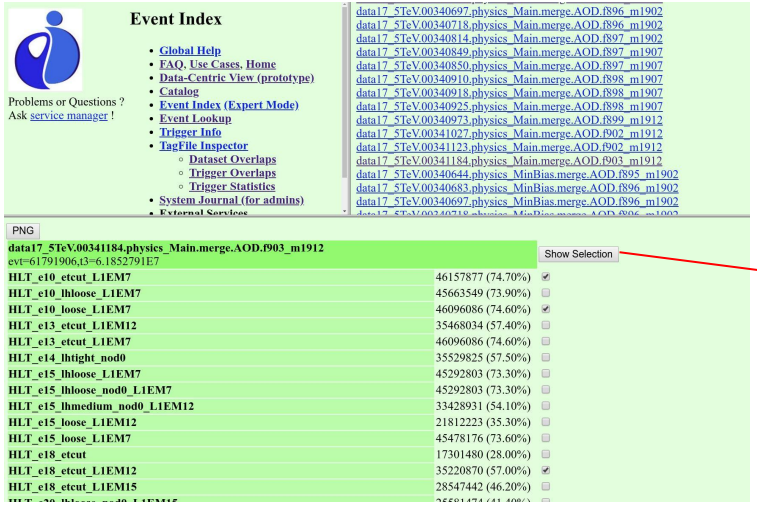


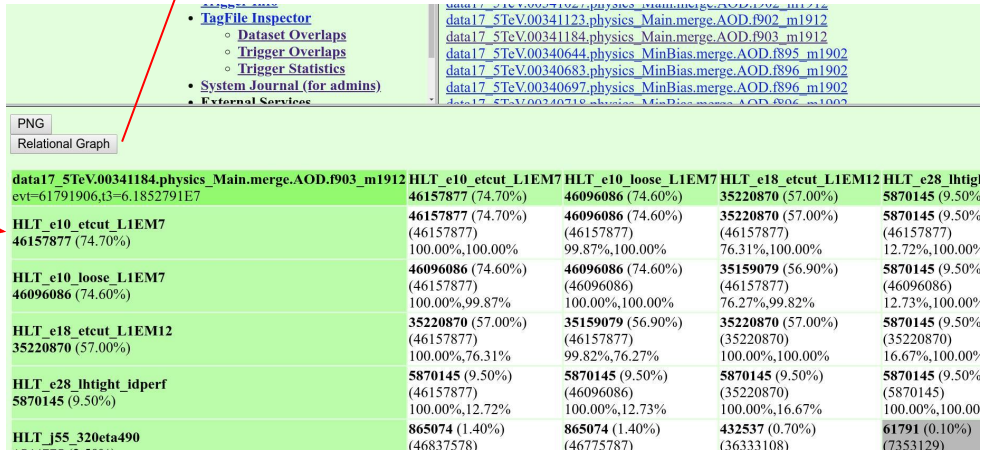

**Example** (click on **Relational Graph** button):
Small: https://atlas-event-index.cern.ch/EIHadoop/InspectView.jsp?runs=00341534&view=DOverlap

# Graphical Web Service - Trigger Overlaps

- Similar to dataset overlaps
- Two colors correspond to HLT & L1 triggers
- Trigger overlap tables
  - Based on a subset of events only
  - Very big => quite slow to load

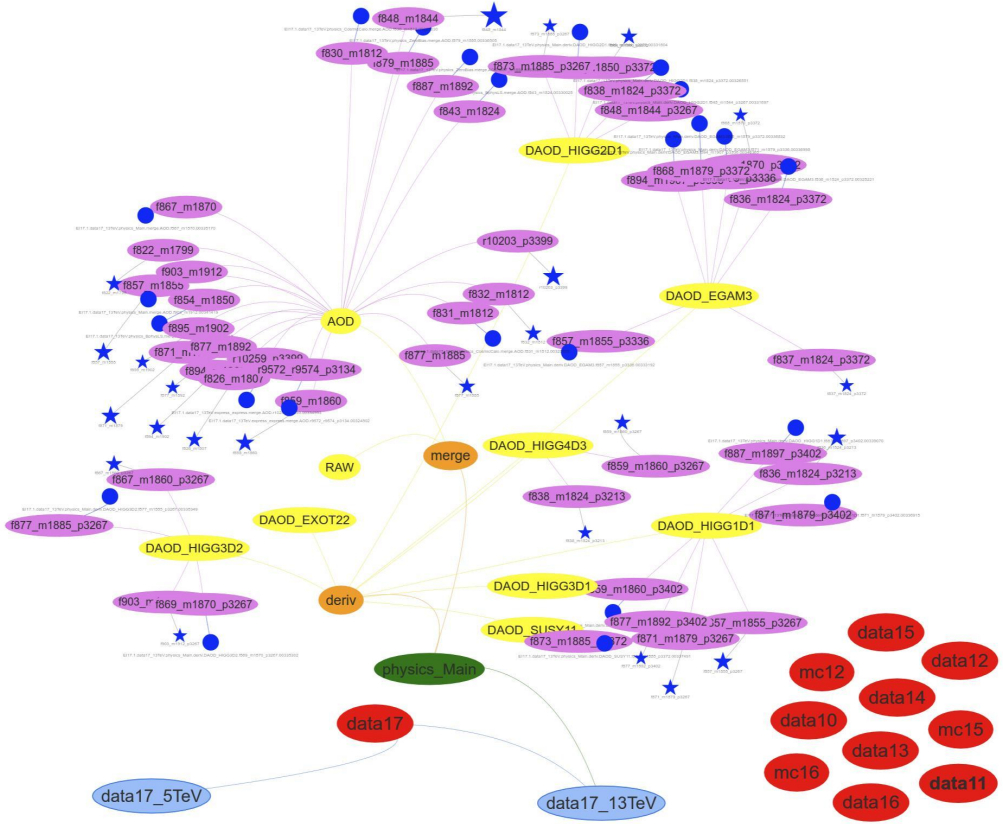


# Graphical Web Service - Top Level Demo

- A top-down navigation with selections
- Context-sensitive information and actions (t
  call other services)
- Possibility to show/hide & cluster/uncluster
  nodes according to various characteristics
- Structure from year down to datasets
- Relations between entities
- Implementation:
  - The whole graph represented by JSON structure => easy to interface with any data source
  - The visualisation done by JavaScript
  - Integrated in JSP EI Web Service




**Demo:**
https://atlas-event-index.cern.ch/EIHadoop/RelationalGraphDemo.jsp

# Info

**Web Service:** https://atlas-event-index.cern.ch/EIHadoop

**Documentation & Distribution:** https://atlas-event-index.cern.ch/doc

**Frequently Asked Questions:** https://atlas-event-index.cern.ch/doc/faq

**Sources:** svn+ssh://svn.cern.ch/reps/atlasoff/Database/TAGHadoop/TagConvertor

**AFS:** /afs/cern.ch/project/jps/reps/atlas-eies/TagConvertor

**CVMFS:** $ lsetup eiclient

**EOS:** /eos/atlas/atlascerngroupdisk/proj-evind/Results