

FcalTB03 Athena IO & Converter Summary

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Abstract

The following is a summary on why and how the FcalTB03 io and converter for Athena was developed.

1 Motivation

New development of the FcalTB03 io and converter was motivated by the Fcal community to address limitations of the exiting version. These limitations are:

1. Could not access more then one file.
2. Could not access data file located on castor.
3. Incompatible with current versions of Athena.

Of the three limitations only the last was caused by the converter. The other two limitations resulted from the file io.

The development of the new "converter" was based on the HEC "converter". Figure 1 is a flow chart of the files used by the "converter".

2 File IO

The development of the new file io was initially written to address only the first limitation listed above. This code was based on P. Gorbunov's documentation and code. The second limitation was addressed by using the RFIO Application Program Interface (API) which consists of the several function calls that closely mimic UNIX I/O.

3 Converter

With the exception of the calibration board data, all the event sub-block data has been unpacked into athena data objects. The following is a summary of how the raw data is related to the athena data object:

FEB data - SubBlockID: 0xFF02 LArDigit and LArDigitContainer and TBLArDigitContainer. The redundant containers is for flexibility since this years test beam used TBLArDigitContainer.

BPC data - SubBlockID: 0xFF05 TBBPCRaw and is easily converted to TBBPC using this years algos.

Beam Detectors - SubBlockID: 0xFF06 TBScintillatorRaw, TBADCRaw, and TBTDCRaw.

TailCatcher - SubBlockID: 0xFF04 TBScintillatorRaw, TBADCRaw, TBTDCRaw, and TBTailCatcherRaw.

Time - SubBlockID: 0xFF03 TBTDCRaw

With the exception of the feb data, all athena container objects are recorded into StoreGate using the SubBlockID as the StoreGate key. The feb data is recorded using the gain as the StoreGate key. Make sure you specify in your job option script the correct StoreGate key.

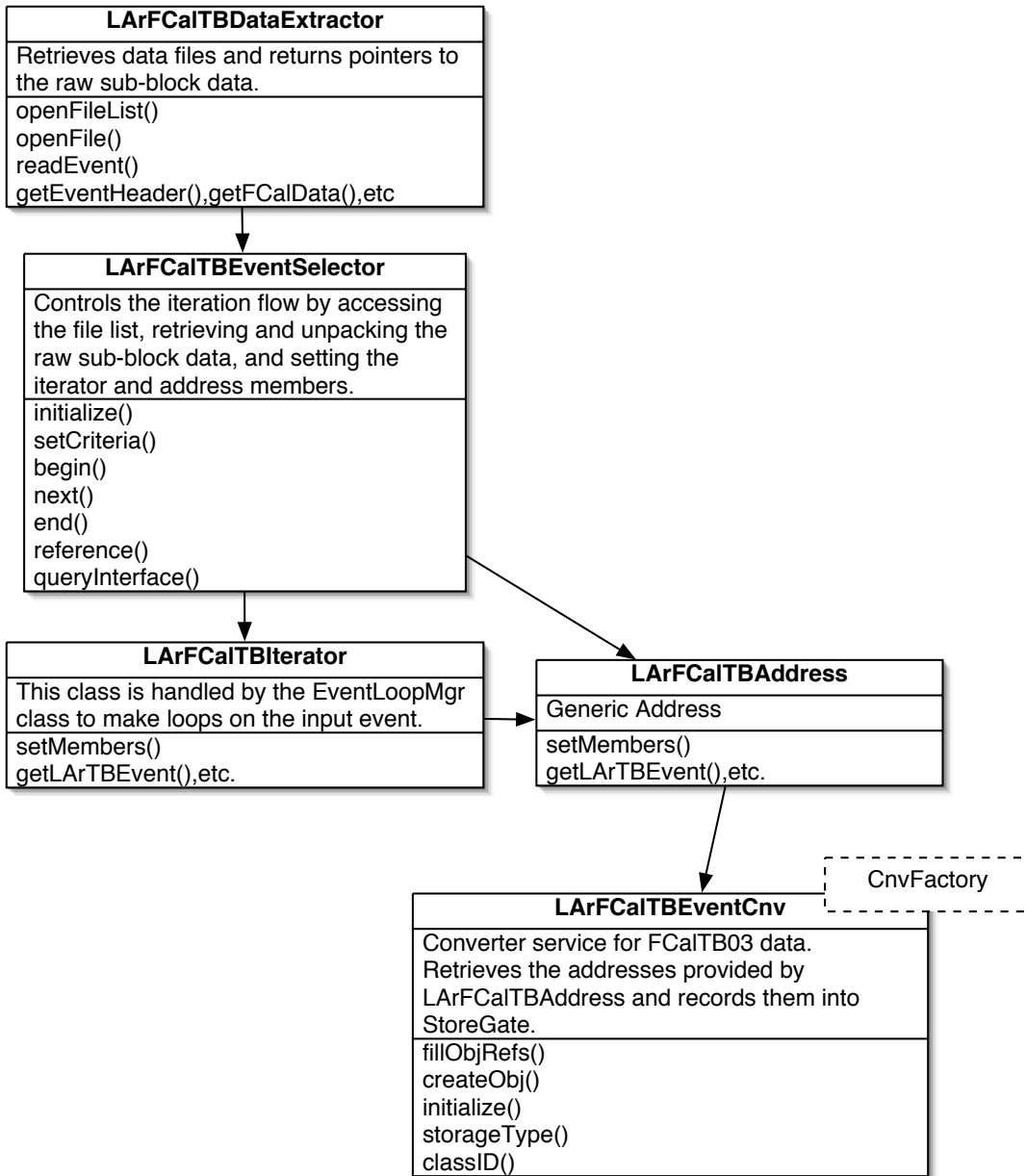


Figure 1: LArFCalTBConv flow chart.