DAQ1000 Data Formats

Version 0.2
Overall format version 0xF [in testing...]
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[PRELIMINARY]

I. Overview

The daq1000 data format will be based on the SFS file format, which organizes each file as if it were a standard directory based file system. To specify the file format, we need to specify three components:

1. The SFS format itself.

2. A standard directory structure to locate each bank.

3. The binary structure of each bank (represented by files)

II. The SFS format

The SFS format itself has no STAR/DAQ specific components. It is documented at:

http://www.star.bnl.gov/STAR/html/daq_l/DAQ1000/sfs.pdf

III. The BASE Directory Structure

The base directory for an event is always /#n/ where n represents the event number with no 0 padding. The portions marked in bold are written by the sector brokers. The portions in plain are prepended by EVB.

Any file not described in this document will be ignored by readers.

Any file ending in ".txt" will be considered ASCII data that can be dumped to the screen.

```
/#n/EventSummary        //
/#n/legacy              // the ".daq" file image for legacy detectors
/#n/trigger             // trigger data
/#n/tpx/                // contains TPX data
/#n/hft/                // directory structure for HFT data
/#n/tof/                // directory for TOF data
```

There may be files with directories that do not start with /#n/. These files are to be interpreted as logging information and should not be considered part of any event. They should have a structure that ensures uniqueness, based on the node logging. For example:

/tpx/sec01/#n/rb01/log.txt

IV. Specific SFS bank formats

1. /#/EventSummary

This bank contains a copy of the high level event information. The binary format is described by the following little-endian structure:

```
struct gbPayload {
  uint eventDesc[10] ;   // take from data!
  uint L3summary[4] ;
  uint L2summary[2];
  uint L1summary[2];
  uint rtsDetMask;
  uint eventNumber;
  uint sec;
  uint usec;
  uint flags;           // bit 0 set, tpc raw data inside
  uint evp;
  uint token;
};
```

2. /#/legacy

This bank contains the .daq file for legacy detectors. Current legacy detectors are:

TPC
FTPC
BSMD
ESMD
PMD
SSD
Trigger
BTOW
ETOW

A copy of the trigger bank will also be stored in SFS file format.

3. /#n/trigger

This bank contains a copy of the trigger data. The trigger data follows the standard format given defined by trigger given in trgStructures.h

4. /#n/tpx/

This directory is the base directory for tpx data. The contribution from each sector will be given by the following structure.

/#n/tpx/sec01/**rb01/adc(0...n)** // zero suppressed data
/#n/tpx/sec01/**rb01/pedrms(0...n)** // pedestal & rms data
/#n/tpx/sec01/**cld(0...n)** // cluster data
/#n/tpx/sec01/**dummy_token0.txt**

adc files contain altro formatted zero suppressed adc data.
pedrms files contain pedestal and rms data.
cld files contain cluster data.

5. /#n/hft

This bank contains HFT data. The data is likely to be structured according to the following, although this has not yet been defined…

/#n/hft/sec01/**rb01/adc**

6. /#n/tof

This bank will contain TOF data. The structure is not yet defined…