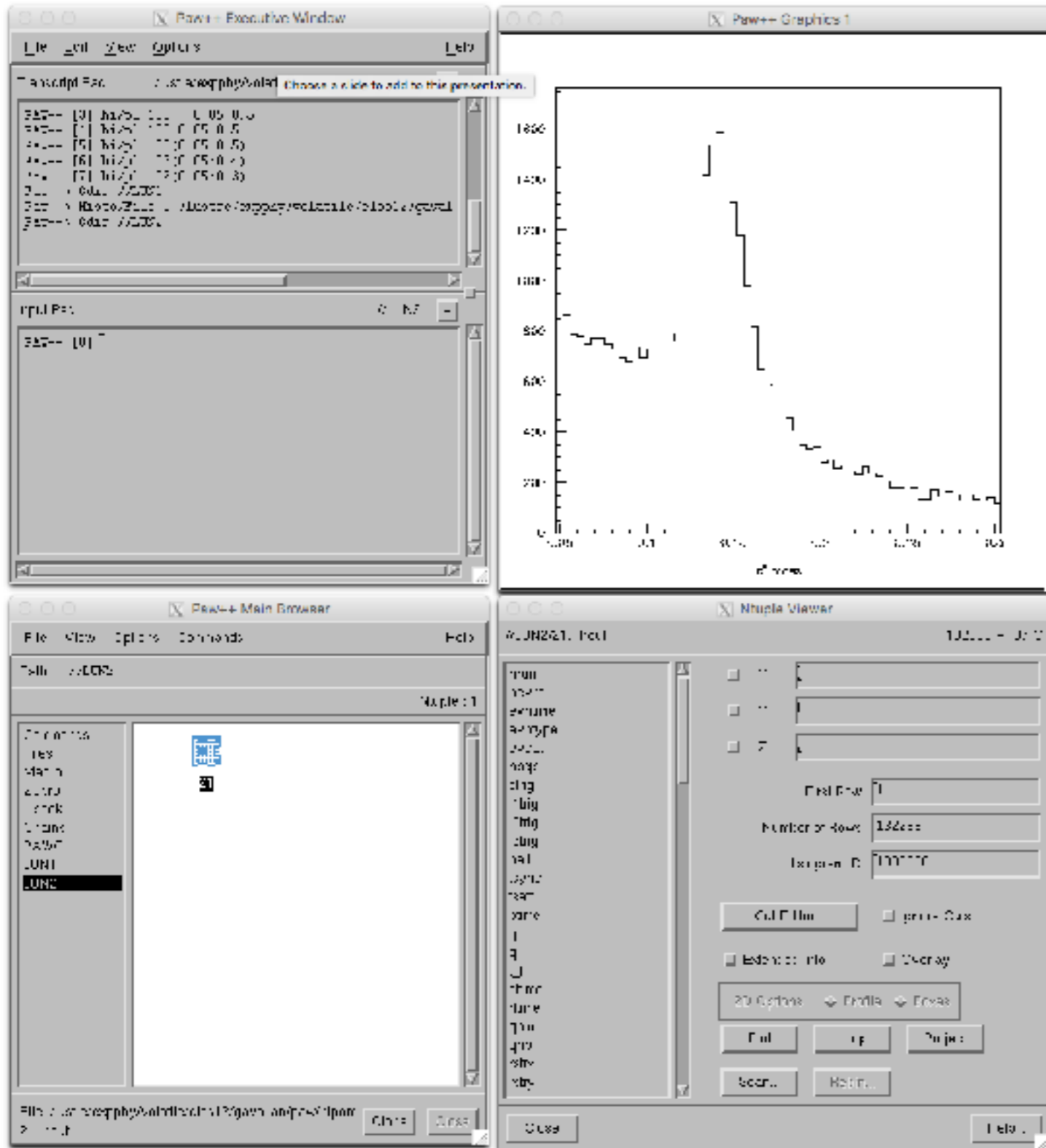


ACE Committee Request (recommendation)



- The ACE requests that there be a software tool to convert the HIPO output (from the reconstruction software) to root format, as a simple flat dump of all information in the HIPO file. The reason for our request is that the barrier for many people to learn how to use the HIPO format (and its interface to other software such as groovy) is too high for the short time we have before CLAS12 starts taking data.
- While it is reasonable that in the longer term, software be developed that does post-processing of HIPO files and provides a shortened DST output (presumably with some standard cuts such as fiducial cuts, etc.), in the short term, help to the software effort from outside JLAB is difficult without access to the data in root format.
- If the collaboration is serious about asking for more involvement from offsite collaborators, this is a necessary step. We believe that the software group and the collaboration as a whole can maintain a "standard" software path that will result in a DST in the future, and this should be enough to guard against the worries of non-standard analysis paths using this root "dump" format.
- To safeguard this, as a temporary measure the source code could be kept by someone (e.g., Gagik) and only the executable made available outside of the software group.

PAW++/FORTRAN



- **C/FORTRAN API**
 - reading HIPO banks
 - convert to HBOOK
- **HBOOK conversion**
 - HEADER bank
 - EVENT bank
 - DETECTOR bank
- **SCRIPTS (PERL)**
 - automated include file generation for banks
 - automated fill code generation (F)
- **H2ROOT**
 - ROOT tree conversion
 - NT10 emulation

produced by S. Stepanyan

FORTRAN I/O

```
CALL OPEN_HIPO(NRECORDS,'infile.hipo')
WRITE(*,*) 'NRECORDS = ', NRECORDS
DO R=1,NRECORDS
  CALL READ_RECORD(R,NEVENTS)
  DO E=1,NEVENTS
    CALL READ_EVENT(E)
    CALL READ_NODE_INT(22, 1,NROWS,PID)
    CALL READ_NODE_INT(22, 8,NROWS,CHARGE)
    CALL READ_NODE_INT(22,12,NROWS,STATUS)
    CALL READ_NODE_FLOAT(22,2,NROWS,PX)
    CALL READ_NODE_FLOAT(22,3,NROWS,PY)
    CALL READ_NODE_FLOAT(22,4,NROWS,PZ)
    WRITE(*,*) 'ROWS = ', NROWS
    WRITE(*,*) (PID(j),J=1,NROWS)
    WRITE(*,*) (CHARGE(j),J=1,NROWS)
    WRITE(*,*) (STATUS(j),J=1,NROWS)
    WRITE(*,*) (PX(J), J=1,NROWS)
    WRITE(*,*) (PY(J), J=1,NROWS)
    WRITE(*,*) (PZ(J), J=1,NROWS)
  ENDDO
ENDDO
END
```

- **FORTRAN**
 - full API for reading files
 - reading individual nodes
 - application development
- **TO DO:**
 - optimize node reading
 - implement file chains

ROOT



- ROOT tree includes SEB banks for now (produced by H2ROOT)
- Can be extended to output all ADC/TDC banks
- Can be used in calibration and monitoring

