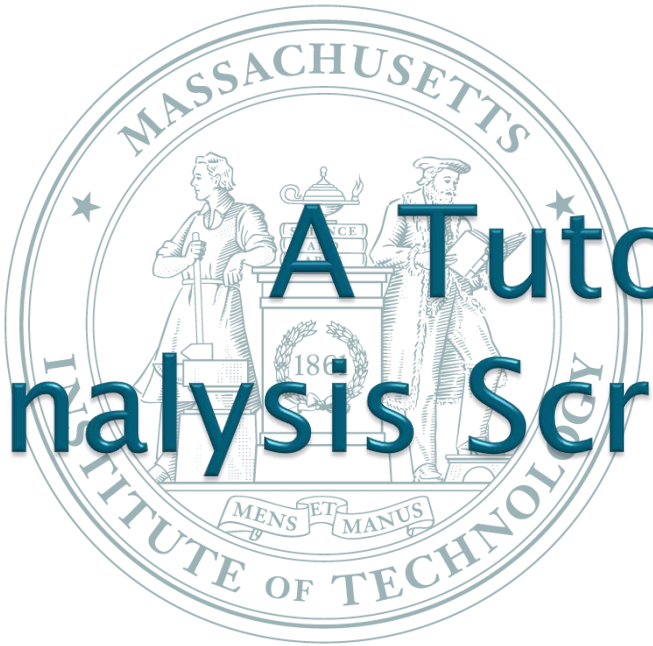


A Tutorial to Online Analysis Scripting System

Jin Huang

Ph.D. Candidate

Massachusetts Institute of Technology

What's This?

- Online Analysis Scripts are a collection of Hall A Analyzer based scripts, which process and check data during data taking
- Target computer are `adaqlx.jlab.org`
- Target users are shift works and experiment specialists
- This talk concerns the one used on recently finished E04007 and E08007

Advantages of the system

- Stable
- Up2date and Good Capability
- Self Protection
- Smart Inputs
- Easy maintenance

Components

- Analyzer, Additional Libraries (Bigbitelib)
- Reply Script
  - `ReplayCore.C, Def.h`
  - `Replay_xxx.C`
- Parameter Database
- Online Plots and Check
  - Online_GUI
- Peripheral Code
  - Batch Replay
  - `Set_golden`

Code Libraries

- Analyzer
- Bigbite Library
  - A collection of Hall A analyzer based modules designed for Bigbite Family Experiment:
    - BigBite Spectrometer
    - Trigger Plane
    - MWDC (both versions of Ole's Treesearch and GEn)
    - Total Shower (GEn)
    - Optics
    - Debug
  - Well Documented: http://www.jlab.org/~jinhuang/BigBiteDoc/

Scripts

- `ReplayCore.C`
  - Find An Instance of Analyzer
  - Look for Raw Datafile
  - Get Reasonable Replay Number and Root file address
  - Run the analyzer and Iteration through all segments of raw data
  - Easy to use
- A replay script
  - Load all detectors
  - Call `ReplayCore.C`
- `Def.h, rootlogon.C` and Peripheral Code

Compiled VS Noncompiled Scripts

- Fast Bug Sweep
- Minor faster execution
- Hard to maintenance

Compiled Scripts

- Easy Operational
- Incomplete Support for C
- Hidden Bugs

Non-compiled Scripts

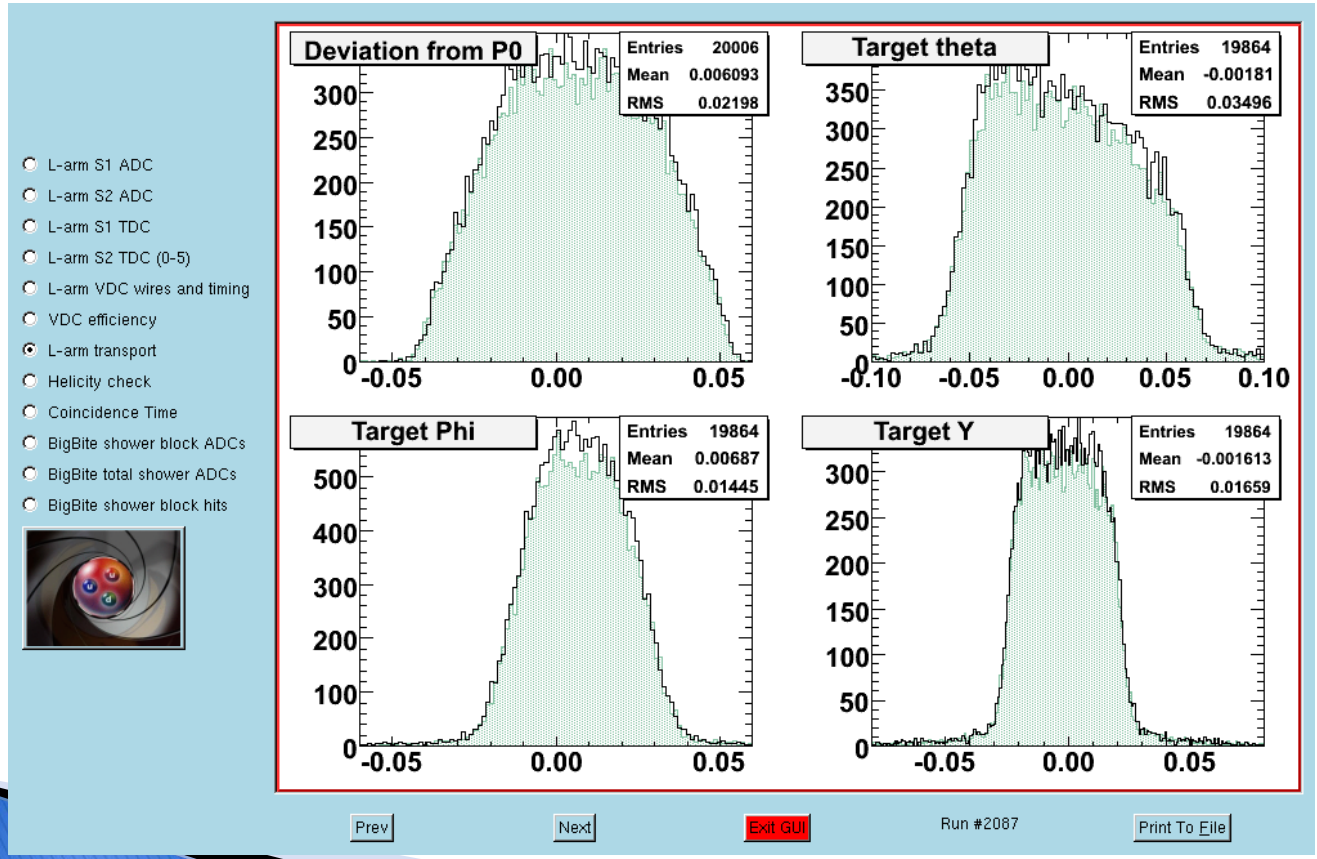
Parameter Database

- Managed by CVS Daily back up (B. Moffit)
  - Check out database for a specific day:

```
cvs -d :ext:cvs.jlab.org:/home/moffit/CVS co -r v20080611 DB
```

- Shared by all experiment
- `db_run.dat` is updated after each run automatically (V. Sulkosky)

Online Plot and Checking

- Online GUI (B. Moffit)
  - http://www.jlab.org/~moffit/onlineGUI/
  - 

Directory Structure

- Link to replay scripts/files
- Link to <Lib>.so
- Link to ROOT File Directory …
- Read database from bbsoftw

Working Dir for Shift Work

Only for using script and generating root files

adaq@adaqlx:~ /<Exp ID>/onlana

- <Exp ID>/onlana
  - Replay Scrips/files
  - Folder for ROOTFile …
- Code Library
  - BigBiteLib
  - OnlineGUI (compiled)
- Database

Source Dir for all codes and configurations. Only accessible for expert

bbsoftw@adaqlx:~/

Where to read more

- Log into adaql*x* and *goonlana*
- Examples Downloads: http://www.jlab.org/~jinhuang/Meeting/2008.06.12%20Analyzer%20Workshop/Scripts/
  - NonCompile replay SDK: `Replay_NonCompiled.tar.gz`
  - E04007 replay final version (Replay Script for Compile): `e08007OnlineSuiteFinal.tar.gz`
  - E08007 replay final version (NonCompile Scripts): `e08007OnlineSuiteFinal.tar.gz`
- BigBite Library Documentation Page http://www.jlab.org/~jinhuang/BigBiteDoc/