

# Offline Software Update

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Priority given to online/offline interface

## raw2root

- Utility to convert from online “raw” format to offline root format
- Should work to deliver raw data in root format
- No need to spool offline data to disk online

## OnlineMonitoring

- Currently only RICH is in displays
- Blanks for other detectors. Drift chambers next on my list

What else should be on this list?

# Framework packages all in place

EventDataModel	(EDM)	– Event data format
RawData	(Raw)	– Raw data objects
MCClasses	(MCC)	– Monte Carlo data objects
IoModules	(Io)	– Read / write
JobControl	(JobC)	– Building offline analysis and reconstruction jobs
Geometry	(Geo)	– Detector geometry
Config	(Cfg)	– Configuration data management
MippXML	(MXML)	– XML support (on top of xerces) for Config package and others
MippDatabase	(Mdb)	– postgres interface
EventDisplay	(EVD)	– Event display

A couple of successful users:

Sharon has added chambers to event display

Pierrick has started on a chamber reconstruction project and started “ConnectionMap” package for chamber cabling

# Executables

`rawdump` – Produce text dump of raw data file

`edm_dump` – Produce test dump of offline data format

`anamipp` - “Main” program for reconstruction and analysis

`e907mc` – Detector simulation

`evd` – Event display

## Documentation

It is possible for people besides me to use the offline

There is not much documentation. Started to work on this but progress is slow.

Best bet is to look at examples in “test” directories of the packages. These test important features and are therefore a good source to see what features exist

Don't let the lack of documentation stop you from getting started!

# Reconstruction Software

- First pass TPC reconstruction is in good shape (Andre)
- RICH reconstruction is in good shape (Sharon)
- Chambers started (Pierrick)

I would like to focus work on tracking. My outline of tracking:

- [1] 1<sup>st</sup> pass TPC tracking finding and fitting
- [2] Extrapolate tracks to chambers and add wire hits with loose cuts
- [3] 2<sup>nd</sup> pass TPC+Chamber track fit, eliminate wire hits with large residuals
- [4] Primary vertex formation in TPC
- [5] Final tracking using vertex constraints
- [6] Pick up unused wire hits and form decay tracks past TPC
- [7] Form decay vertices and make decay track fits

# Reconstruction Support Packages

RecoBase (RB) - Common track features

Bfield (...) - JGG and Rosie fields

Swimmer (Swim) - Particle transport

MCTruth (MCT) - Form reconstruction object from MC truth parameters

# Things to do to make this work

- Digitize drift chambers: Done! (See slides from Sharon)
- “Swimmer” is in place, but details need to be worked out for Chambers. Drift chamber geometry uses different coordinate system than other detectors.
- Integrate existing reconstruction code into “standard” framework
- Improve and flesh out the reconstruction Track base classes
- Get some samples of Monte Carlo and data to test on

# Monte Carlo

The Monte Carlo is not complete. But we have TPC, Chambers, and RICH. I think this is enough to get started.

Proposal:

Start exercising Monte Carlo and what exists of the reconstruction and generate “standard samples”

What data samples should we generate?

proton + Copper

pion + Copper

What (ranges) of momenta?

How many events? (1000's)

Eventually this will be more than one site can handle. Other sites interested in lending computing to this?

# Database

Database / XML configuration.

David has this working (MippDatabase/xml)

I think he's the only one who understands it at the moment

Need to migrate existing data to database/xml system

Need to get experience running database client/servers

Need to work out system for distributing database to sites

Backups?

Would be useful to have a standard spreadsheet to XML to database table conversion utility

Need to enumerate list of tables we need to support offline