CDF Databases

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- Don't Panic
  - Background on DB
  - Calibration
  - Alignment
  - Copies for you at Home
  - Getting the Data,Lumi you want

- Panic
  - Trigger
  - Run Conditions (ish), Hadron Calibration? Silicon, Computers
  - Monitor and Controls

- They Shoot Horses, Don't They?
  - Plans and Requests

Definition of Run I CDF Database

A bunch of files on random machines and in private areas and common blocks with critical values for analysis that you could never get to based on a variety of home-brewed Database Management Systems

Example:

```
OPEN(FILE="file1.dat")
DO 1000 I=1,100
READ(*,*) A(I)
1000 continue
P(X)=A(33)*P(X)
```

Definition of Run II CDF Database

- Database management system: Oracle ($250K/yr)
- There are no "databases": tables of information and keys to other tables of related information
- What you want is: SvxCurrent=Mcs.Svx.Current(LogicalID); and a document that tells you that this is what you do to get it.
- You want the data: Use Oracle Distribution.
- You want it working: SupportDB

Don't Panic:SupportDB

- Support DB provides expertise and liaison to Oracle Support
- CD provides coding experts and consultants
- MOU being defined to support the database

Don't Panic:SWAT Team

Case in Point: Crash of B0 Database Machine at 5pm

1. At 22:00 Jim P noted Oracle was not up
2. Next morning, Cindy Wike, Barb Angelos, Shirley Jones, Nelly Stanfield and Diana Bohnham contacted Oracle
3. Hourly email updates were sent to CDF
4. Bug report filed with Oracle by noon
5. All recovered by 3pm, 7 min data lost

Lesson: The SWAT Team for Databases is in place and works with Oracle Support.

Frequency: Last happened in October

Don't Panic:Design Approach

Use C++ features to keep code to a minimum

Example: How to get to your data for calibration/monitoring for ONE bank: a common case

- Give David Daggenhart your bank structure and document in CDF4152. Rich Glosson (consultant) and he code it.

- Ask Jack Cranshaw for advice (RTFM) on writing your functions (methods) that:

  1. "book" root histos
  2. "accumulate" histograms or pedestals
  3. "validate" the data (make dead channel lists)

Don't Panic:We are Ready for you

- You need about 100 lines of code.
- Result: Rapid response, you can put your calibration in as soon as your bank is coded.
- Running: SVX (needs mods), Calorimetry (LED/Source being written), CLC, SHRMAX, COT
- Not Done: Muon(don't panic), Hadron (panic?)
- Dead Channels need trying out.

Don't Panic:Alignment

- Mark Lancaster will set up tables and access from C++
- Ray Culbertson will figure out what to align.

Don't Panic:Getting Data at Home

- Disk Space: cheap
  Database Administrators: Expensive: $120K/yr
  Centrally administer databases like for code distribution (50Gbyte at home for DB)
- Choose freeware or Oracle Replication
- Work in progress, consultant hired and will implement from June 1 to September 1.
- Code for freeware done, Proposal for Oracle in consult with Oracle.
- Replication online to offline by July 1
- Protoype replication to institutes by July 1
- Full replication to institutes by September 1

Recipe for a Trigger

1. Need the definition of the trigger "schema" (database)

2. Need to be able to enter triggers

3. Need to be able to retrieve triggers for download

4. Need to be able to retrieve triggers for TrigSim++

Panic:Trigger

Recipe for a Trigger

1. Need the definition of the trigger “schema” (database)
   - Alexei entering into Oracle Designer: Spits out commands to define the tables.
   - Julie Trumbo (Oracle consultant,CD) and Kirsten Tollefson (L3/Rochester) will help finalize this next week.

2. Need to be able to enter triggers:
   - Checking rules is too lofty a goal for commissioning. GUI being written without checking. Rule check needs NEW features of the NEXT Oracle release.
   - Expect to be able to use GUI (Donatella’s only job just now) for L1, L2, L3 triggers.

3. Need to be able to retrieve triggers for download

   - Access code done (Dennis Box,CD) who will transfer knowledge to a trigger group
   - NEED a trigger liaison (Peter Wilson)
   - Next week: 2 day slot of Dennis' time (more in June)
   - Code also needs to access other tables in Oracle (ie. run configuration)

4. Need to be able to retrieve triggers for TrigSim++

   - Access from Dennis: same as Calibration
   - Trigger manpower we thought we had evaporating

Panic:General

- Hadron Calibration?
- Schedule to get Data File Catalog goodies
- The Database is 25 $\times$ what SupportDB has personal experience doing. They are being demanding on us to ensure success.
- Computer hardware: (June 1-July 1 delivery!)
- Silicon drives the design, but we have no operational experience
- Run Conditions: Rely on external requests
- Monitors and Controls: External Requests, Need Oracle Design

They Shoot Horses:Trigger

- Need the list of triggers for commissioning run: eliminate general rules checking.
- We have text files now. Recommend update those to include any other essential triggers. Fallback NOW.
- Makes defining triggers on DB easy: Know what you want

Goal: Finite list of triggers on DB, entered into hardware. TrigSim++ unlikely without concentrated effort

They Shoot Horses:Goals For RDC

- Use Data File Catalog to access data from Web-Based GUI to choose Data sets. GUI exists.
- Calorimeter with Data within a couple of percent of expected calibration. See Vaia.
- COT Stage 0 producing reasonable constants within run. Avi.
- Calibrations are diagnostics, except Silicon.
- Tracks from Barrel 4 running in final configuration of chips
- Replication of data file catalog to home institutes
- Monitor and Control in Oracle for Plug. (Don't have a Fallback)

They Shoot Horses:Requests

- Need Trigger group to work with Peter Wilson (we should consider hiring a consultant to program short term)
- Need Silicon hardware being read into system by July 1 (biggest tables, only one needing calibration to run). Don't study pedestals when there is beam: face March:20$\times$.
- Need RESPONSE from Detector groups on Monitor and Control Needs
- Need Documentation Czar
- Need Goals from Young-Kee with a view toward the Physics Running
- Need Computers Deploy June 1