Offline Data Quality Information

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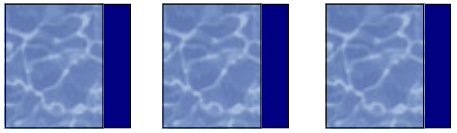
Conveners meeting, June 5, 2002



Motivation:

To provide simple access to offline run quality information for D0 analyses.

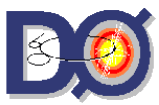
Quality information can be stored per quality group, which could be

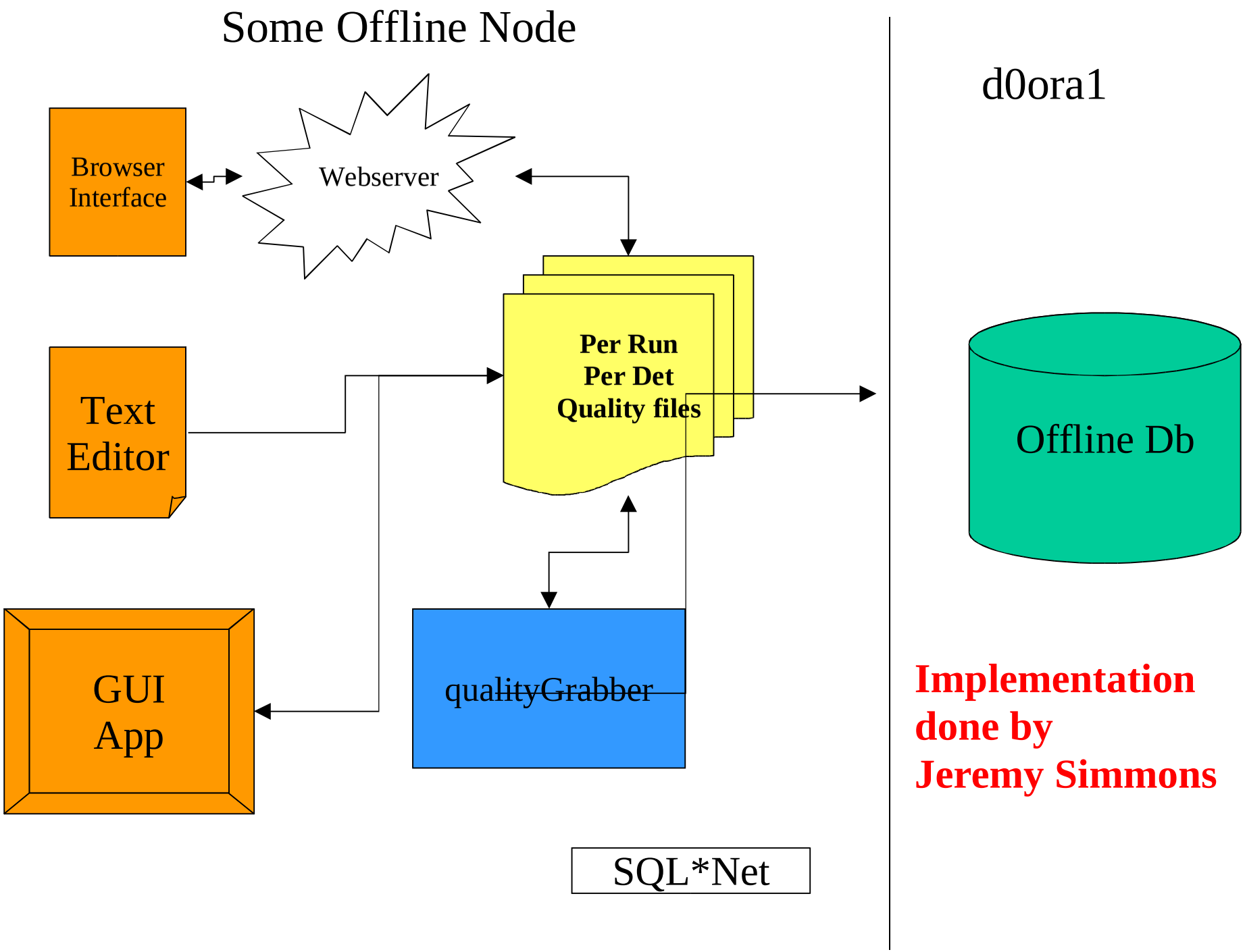
- a detector (currently CAL, SMT, CFT, MUO)
- an ID object (currently MET,JET)
- Future: Triggers, FPD, Tracking etc..

For all these quality groups a minimum of one status word is being stored which has a structure common to all groups

Current plan:

Status	Definition
good	A physics run with no known problem, which likely can be used for physics analysis/publication
reasonable	A physics run with minor problems which can perhaps be used for physics analysis but needs to be treated with care
bad	This run should not be used
special	A run for experts only, special conditions.
unknown	This run has not be classified (default)




Some Offline Node
d0ora1
Browser Interface
Webserver
Per Run
Per Det
Quality files
Text Editor
Offline Db
GUI App
qualityGrabber
SQL*Net
Implementation done by Jeremy Simmons

An ASCII file is produced that is used to update parameters in the offline runs database pertaining to run quality

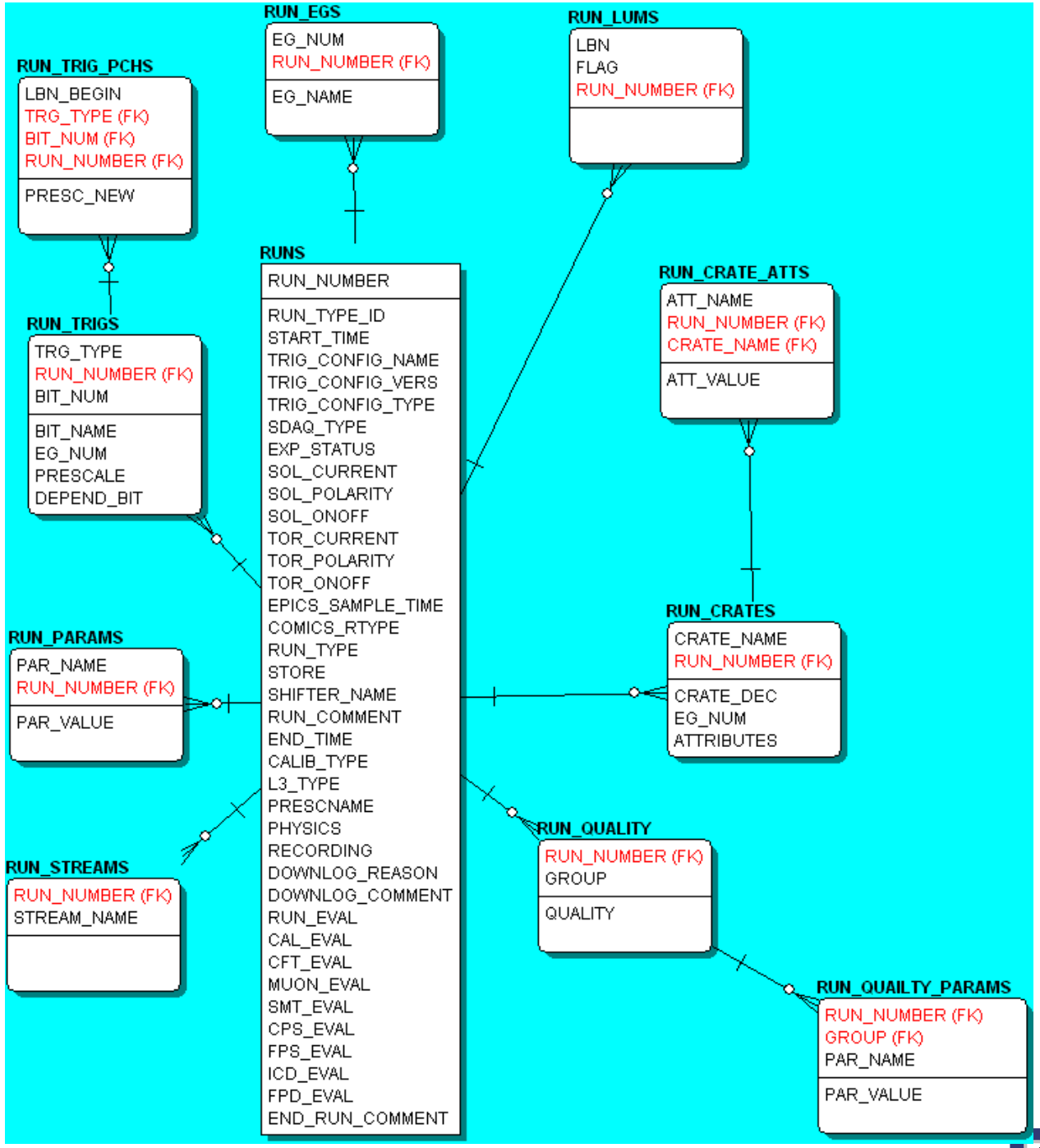
The file contains as a minium

- Group name (e.g. CAL)
- Run number
- common quality flag (only common flags will be accepted here)

Optionally the files contains any number of name:value pairs which can be freely defined by the groups.
The groups are responsible for producing these files, e.g. by

- a web interface
- GUI
- 'hand'
- examine (Pushpa will produce run based online examine in the near future, end of shutdown)

These files are read by the qualityGrabber (python)



Every group obtains userid and password to enter and update information

Administrator adds groups, flags. Only administrator can delete information (currently SSR)

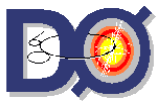
Specifications

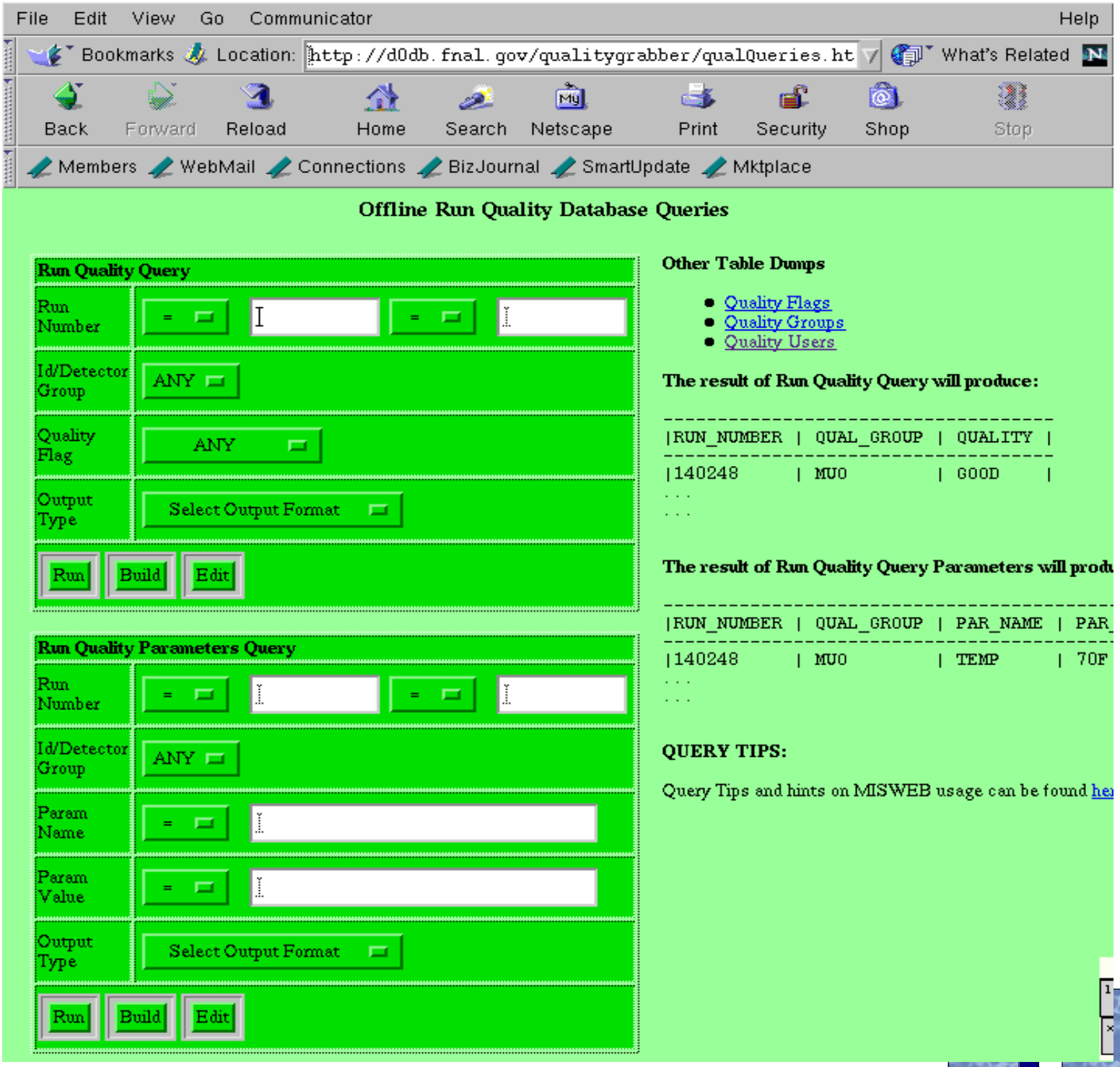
The files are produced per run with the name:
<group>_<run_number>.dat

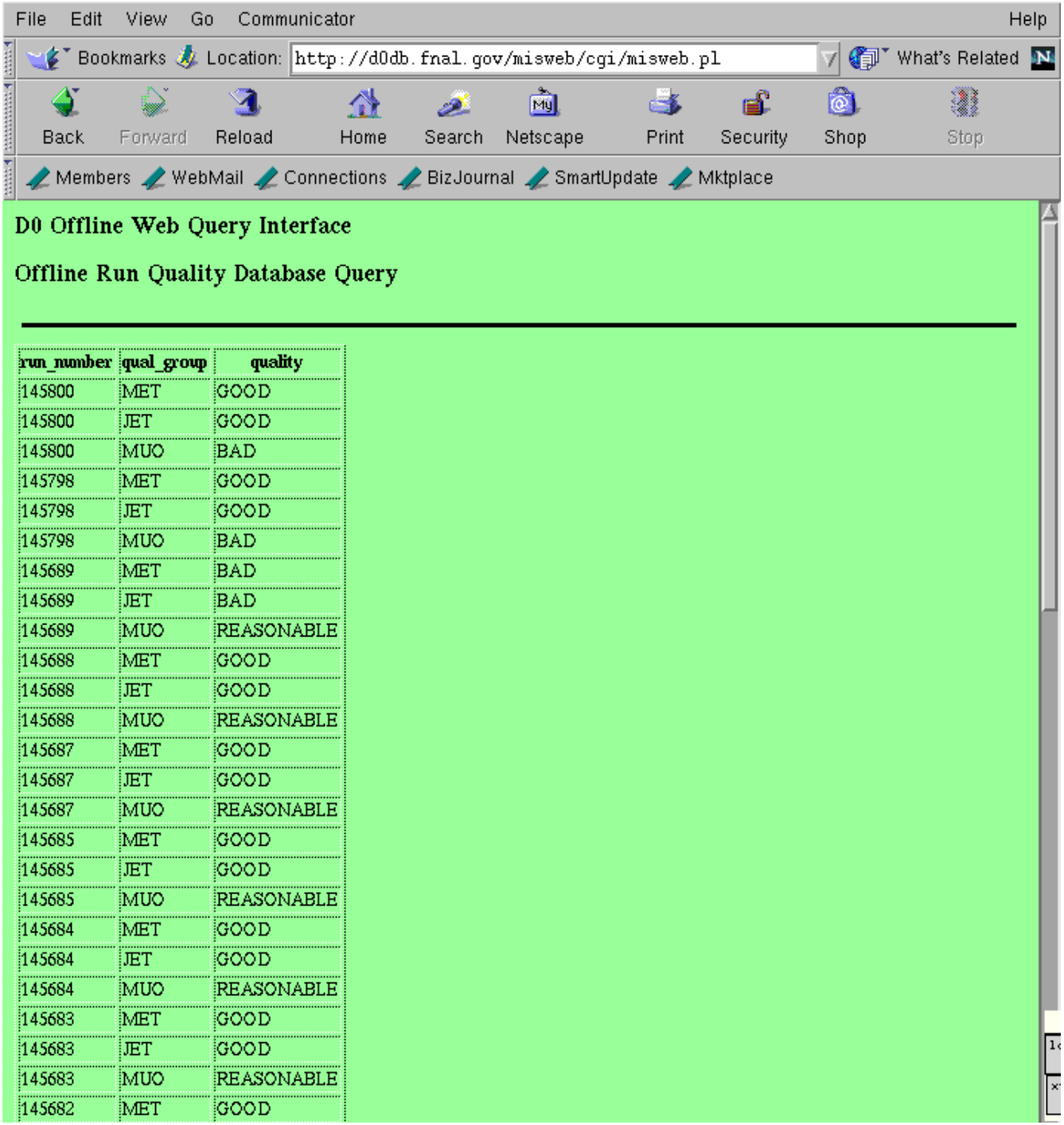
The file contains:
group: <group_name>
run: <run_number>
status: <status_value>
<parameter_name>: <parameter_value> (alphanumeric)
...

Example file MUO_146437.dat contains:

group: MUO
run: 146437
status: REASONABLE
grade:C
comment:PDT 217 back in read. New CF BC scint thresholds+HV.




File Edit View Go Communicator Help
Bookmarks Location: http://d0db.fnal.gov/qualitygrabber/qualQueries.ht What's Related
Back Forward Reload Home Search Netscape Print Security Shop Stop
Members WebMail Connections BizJournal SmartUpdate Mktplace
Offline Run Quality Database Queries
Run Quality Query
Run Number = =
Id/Detector Group ANY
Quality Flag ANY
Output Type Select Output Format
Run Build Edit
Run Quality Parameters Query
Run Number = =
Id/Detector Group ANY
Param Name =
Param Value =
Output Type Select Output Format
Run Build Edit
Other Table Dumps
Quality Flags
Quality Groups
Quality Users
The result of Run Quality Query will produce:
|RUN_NUMBER | QUAL_GROUP | QUALITY |
|140248 | MUO | GOOD |
The result of Run Quality Query Parameters will produ
|RUN_NUMBER | QUAL_GROUP | PAR_NAME | PAR_
|140248 | MUO | TEMP | 70F
QUERY TIPS:
Query Tips and hints on MISWEB usage can be found he

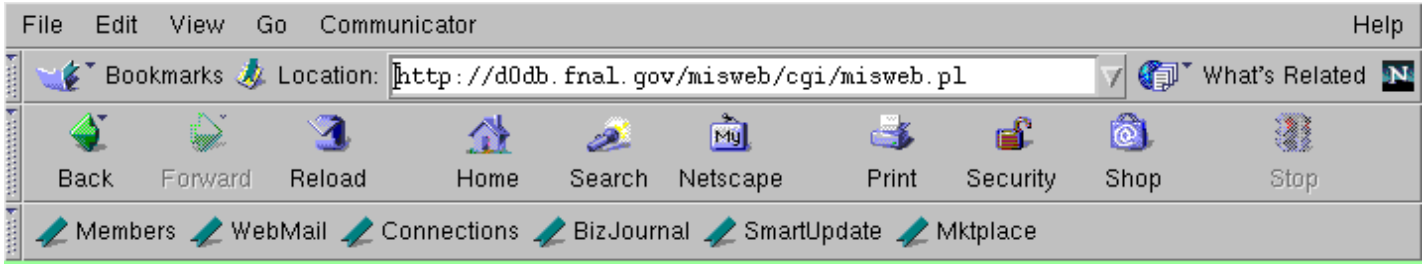


D0 Offline Web Query Interface

Offline Run Quality Database Query

run_number	qual_group	quality
145800	MET	GOOD
145800	JET	GOOD
145800	MUO	BAD
145798	MET	GOOD
145798	JET	GOOD
145798	MUO	BAD
145689	MET	BAD
145689	JET	BAD
145689	MUO	REASONABLE
145688	MET	GOOD
145688	JET	GOOD
145688	MUO	REASONABLE
145687	MET	GOOD
145687	JET	GOOD
145687	MUO	REASONABLE
145685	MET	GOOD
145685	JET	GOOD
145685	MUO	REASONABLE
145684	MET	GOOD
145684	JET	GOOD
145684	MUO	REASONABLE
145683	MET	GOOD
145683	JET	GOOD
145683	MUO	REASONABLE
145682	MET	GOOD

Table can be written out in ASCII format so that it can be read in by a simple macro



D0 Offline Web Query Interface

Offline Run Quality Database Query

run_number	qual_group	par_name	par_value
146437	MUO	comment	PDT 217 back in read stop New CF BC scint thresholds HV stop
146437	MUO	grade	C

Rows 1 to 2 of the Total 2 found.

Back to: Starting Query Page or Edit the SQL query that produced this page.

For help contact d0db-support@fnal.gov — Back to Offline Run Database Home Page

MISWEB Query Interface

Status flag is going to be added here in the next version

Currently included in the database:

- Tom's list including grades and comments
- JET/MET good and bad run list
- An (incomplete) list of bad SMT,CFT,CAL runs with <= 2 crates in read −out
- All new physics runs automatically entered as unknown

Tom's Procedure

- **See D0Note 3938**
  - Use runs query database to ask for trigger %global%.
  - Verify that all readout crates were part of the run.
  - Read muon, captain, and daq logbooks for signs of problems or fixes.
  - Check examine plots.
  - Check the trigger cross section, the number of muon triggers, and the fraction of events which came from muon triggers in each run.
  - Check with experts from all muon subsystems.
  - Input from folk looking at Reco output.
  -
  - Grade the Runs AB(=good),CD(reasonable),EF(bad), S.

Tom's results by events:

	Dec/Jan	Feb	March	April
A+B	0	0	0	0
C	x	3.4M	4.3M	2.0M
D	x	3.6M	7.0M	3.3M
E+F	x	3.5M	1.0M	0.7M

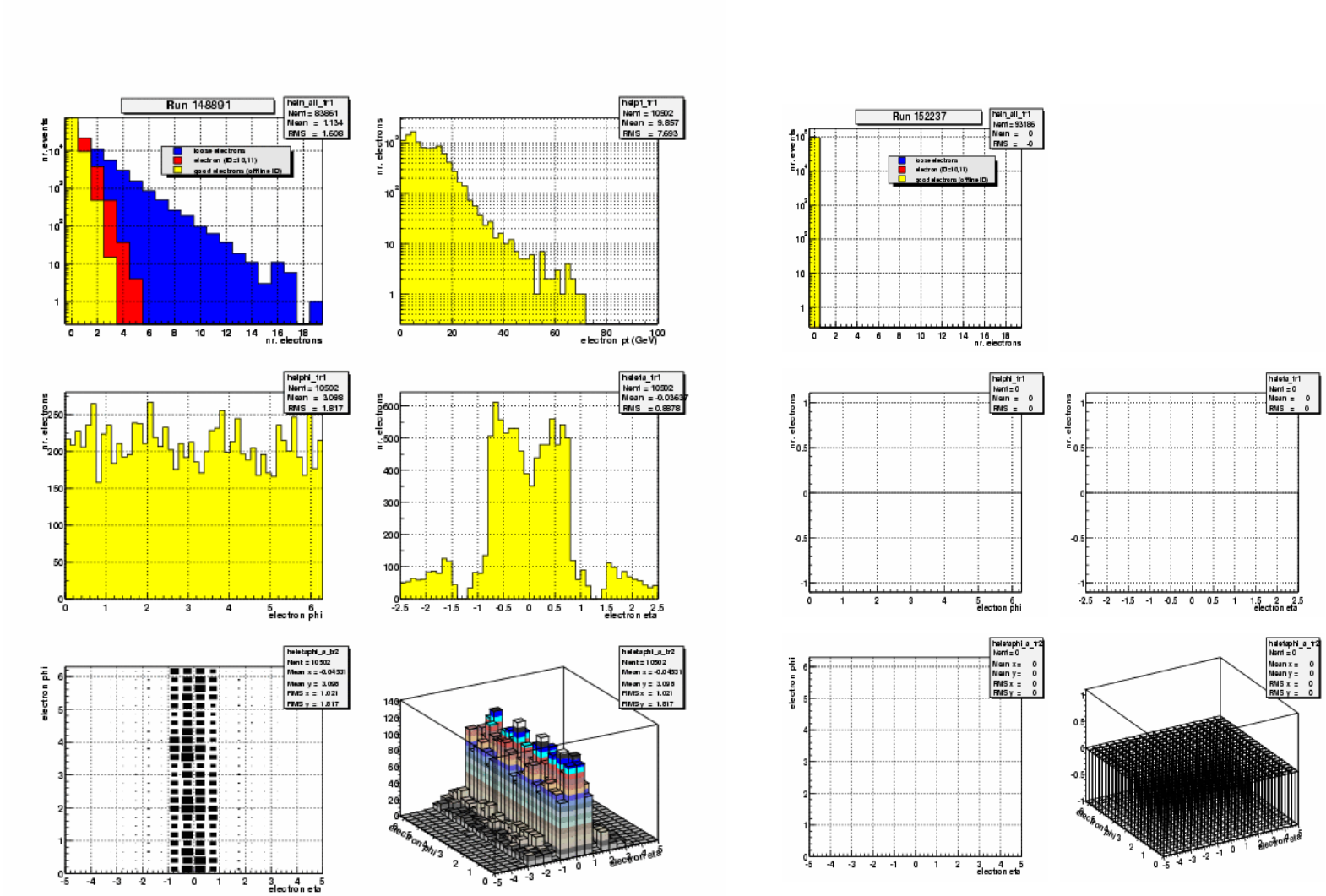
- Fraction of bad runs hopefully small after commissiong phase
- Good runs must still be analysed in detail (never a guarantee..)
- Should all runs with less than N (N=O(1000)) events be labelled bad ?

Bad Events

- It happens that pipelined−buffered front ends occasionally fail in such a way that the event is read−out but the data is bad.
  - Example: front−end is “out−of−sync” (reads out the wrong event).
  - For the muon system these events are flagged in the raw data for each front−end. But we store the information.
- Tom proposes to have a couple of chunks which contain warning and fatal markers summarizing data integrity for ALL of the detectors.
  - Maybe one bit for each subsystem?
  - The chunks should be in the Thumbnail.

  (Not part of the runs quality system)

Bonn group (T.Golling):
checking done by eye, we need automatic procedure (offline examine?)



Status:

First production version of run quality data base can and should be used for analysis.

Future:

provide status information directly at the thumbnail/root −tuple level based on a method which reads info using database server.
Template: magnetic field (Slava Kulik). In preparation.

The various detector or id groups should start to enter information into the database. Every group obtains an userid/password.

‘Private’ lists should disappear to avoid confusion.

We urgently need online examine output run by run.

Run quality database/access will be improved in contact with users