Database Considerations for the Cryo-FOS project

Szillási Zoltán, Béni Noémi, Makovec Alajos

(ATOMKI)

Motivations

We want to:

- store our data in a uniform format regardless the actual measurement setup
- track the carrier of a sensor (arrives, glued, used in various measuremnts, dies, etc.)
- store the sensor parameters together with the data
- be able to make plots of sensor behavious in series of measurements
- store the auxiliary data (reference T, S, I_{magnet}, etc.) together with our data
- give access from various workbenches (ROOT, Matlab, Excel (brrrrr!))
- probably store the standard algorithms of processing, too

DB tables as we have now

FOSData

FieldName	Type
MeasID	varchar(30),
DUT	int(2),
lambda	double(8,4),
amplitude	double(8,4),
validity	int(1),
sensorID	varchar(30),
MeasDateTime	timestamp,
Timestamp	timestamp

Here come the (annotated) raw data

DB tables as we have now

FOSConfig

FieldName	Type
MeasID	varchar(30),
DUT	int(2),
sensorID	varchar(30),
Description	varchar(10000),
Timestamp	timestamp

Describes the measurement setup

DB tables as we have now

FOSPeakDef

FieldName	Type
MeasID	varchar(30),
DUT	int(2),
Threshold	double(5,2),
RelThreshold	double(5,2),
PeakLevel	double(5,2),
PeakWidth	double(5,2),
LinThrMin	double(5,2),
LinThrMax	double(5,2),
Timestamp	timestamp

Peak definition data for the peakfinder

DB tables as we have now

SensorDataSheet

FieldName	Type
sensorID	varchar(30),
serialNo	varchar(100),
partNo	varchar(100),
calibration	varchar(5),
lambda0	double(8,4),
sensitvity	double(20,10),
constant	double(8,4),
lambdaoffs	double(8,4),
C0	double(30,10),
C1	double(30,10),
C2	double(30,10),
C3	double(30,10),
MaxCalibTemp	double(5,2),
MinCalibTemp	double(5,2),
CommissioningDateTime	timestamp,
DeCommissioningDateTime	timestamp,
Comment	varchar(10000),
Timestamp	timestamp

Store here everything (name, IDs, calib data, carrier) of the sensor

If sensor changes (glued, for example), the new entry contains the reference for the original sensor

DB tables as we have now

AuxData

FieldName	Type
MeasDateTime	timestamp,
SensorID	varchar(30),
PhysQuantity	varchar(20),
Value	double(8,4),
Unit	varchar(20),
Timestamp	timestamp

Everything that we can get from the cryo group (T, S, I, etc)

Unstructured data!

Status

Where are we now:

- DB has been set up on the cmsalignas server under MySQL
- very first version of db uploader is ready (only the identified peaks are in db for LHe)
- ROOT & Excel access is tested – OK
- graph generators under ROOT are ready and used for report making

Plans:

- upload LN measurements, too
- Add all (false, satellite) peaks to DB to allow ‘offline’ peakID
- allow Matlab to access (need help!)
- (if needed) port DB to ORACLE and store the standard procedures in DB, too

One more thing…

In order to keep DB healthy we need

only one DBA who is responsible for

uploading!!!