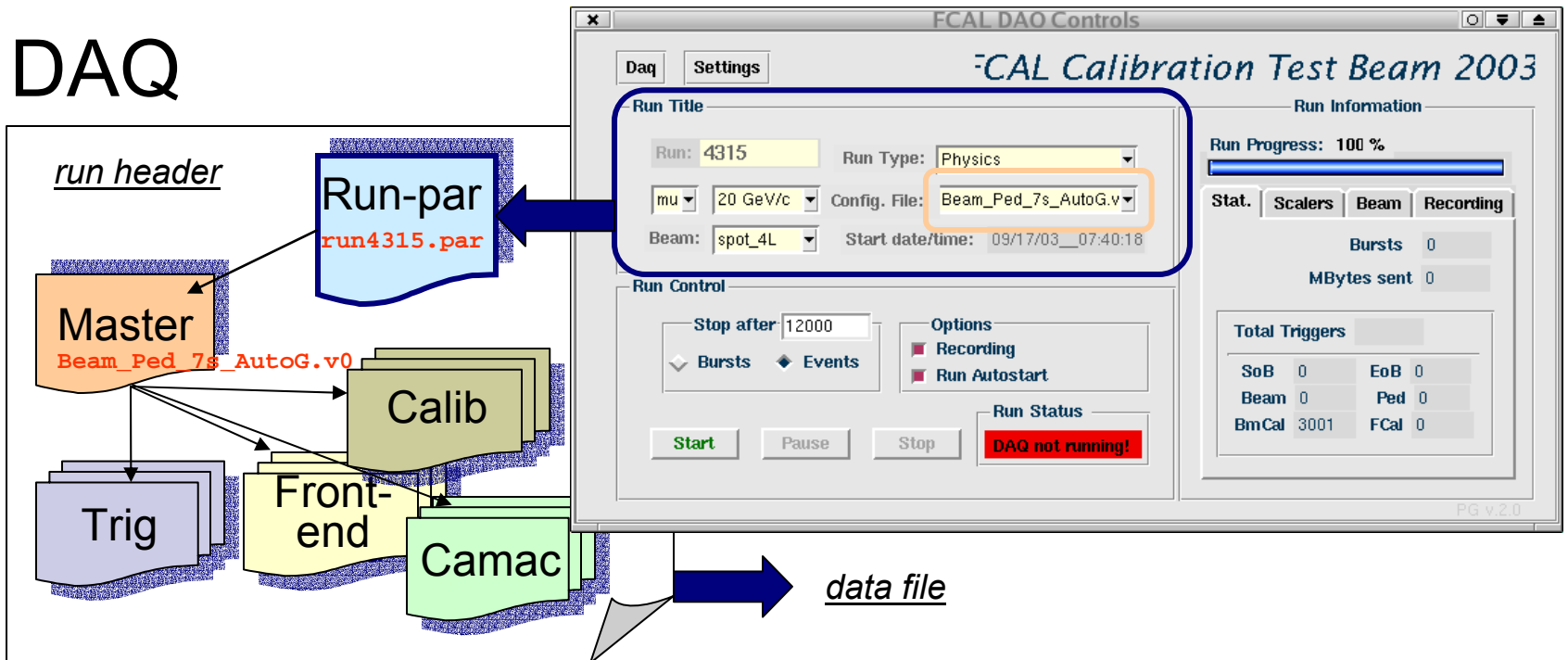


Configuration Data Base for FCal TB'2003 (a NOVA DB use case)

P.Gorbunov (U.of Toronto and ITEP, Moscow)

DAQ



- All configuration parameters are *pre-set* and stored in plain-text configuration files. **Master-Config** files contain lists of sub-system configuration files, specific for different run types (Physics, Calibration etc)
- All run settings entered with the Run Control panel (including the name of the selected Master-Config file) are written by the panel to a **Run-par** file
- DAQ reads the Run-par file, retrieves all parameters, serves them to client routines and *writes the whole set to the run-header, as a block of ASCII text*

Run-control

Master Config

Trigger

Front-end

Generated By DAQ

Camac

```
* -----/raid/daq/config/par/runs/run3501.par
RunNumber 3501
RunType 1
RunConf Physics/Beam_Ped_7s_AutoG.v0
DataStore 1 /raid/data
BeamMomentum 80 GeV/c
BeamParticle 2 pi+
BeamSpot 5
MaxEvents 12000
* ----- /raid/daq/config/Physics/Beam_Ped_7s_AutoG.v0
ConfTrig par/trig/30_1_0.par
ConfFeb par/fe/autoG_7samples.v1
ConfCam par/cam/test_cam.par
ReadOutMask Fcal Bpc Time Tail Beam
RunDebug 0 0 1 0 0 1 0 6*0 0 0
Bpc 1 2 3 4 5 6
* ----- /raid/daq/config/par/trig/30_1_0.par
TrigBeam 30
TrigPed 1
TrigFcal 0
* ----- /raid/daq/config/par/fe/autoG_7samples.v1
FebSamples 7
FebGains 0
FebAddr 0x28 0x26 0x3F 0x22 0x30 0x3a 0x21 0x12
miniROD 1 2 3 4 5 6 7 8
FebTimeout 1000
FebDacOffset 0xc00
FebAutoGainThr 1150 3500
FebReadDelay 0x11
FebFirstSample 3
TtcPdgDly 250
TtcFanDly 2 2 0 0 0 0 0
RunDate 20030910
RunTime 063632
RunStopDate 20030910
RunStopTime 064706
Events 12128
EvTypes 11377 0 380 0 0 0 371 3000
* ----- /raid/daq/config/par/cam/test_cam.par
CamBorer 1
Cam2228A 2 4 8 10
.■.■.■
```

run-header

Text:

- portable
- human-readable
- Data Base-ready:

Name Value(s)

Stored together with data:

- integrity guaranteed
- no online DB: good for a small system
- Offline: choose a concrete DB and fill it, at leisure

What it takes to make a NOVA Configuration DB (via ATLSIM)

```
module config to fill fcaltb configuration NOVA DB
author pasha i petya
created during the night
integer Iprin/0/
structure head { int version 'you guess',
  int RunNumber 'run number',
  int RunType '1=phys 2=calib 3=ped 0=special',
  int BeamMomentum 'Pbeam, GeV/c',
  int BeamParticle '1,2,3,4=e,pi,p,mu+, 11,..=-ve, -1=undef',
  int BeamSpot 'beam pos: 1,2,3,4=4U,5=4D, -1=undef',
  int RunDate 'run start date: YYYYMMDD',
  int RunTime 'run start time: HHMMSS',
  int RunStopDate 'run stop date: YYYYMMDD',
  int RunStopTime 'run stop time: HHMMSS',
  int Events 'Total triggers recorded, w/o BPC cal',
  int EvTypes(8) 'Event types' }

structure conf { int version 'you guess',
  int Bpc(6) 'list of enabled BPCs' }

structure trig { int version 'you guess',
  int TrigBeam 'beam trigger fraction',
  int TrigPed 'random trigger fraction',
  int TrigFcal 'cal board pulser trigger fraction' }

structure feb { int version 'you guess',
  int FebSamples 'number of FEB samples recorded',
  int FebGains(3) 'list of Gains recorded',
  int FebAddr(8) 'list of FEB SPAC addresses (hex)',
  int miniROD(8) 'list of enabled miniRODs',
  int FebDacOffset 'FEB DAC offset (usually 0xc00)',
  int FebAutoGain(2) 'FEB Thresholds',
  int FebReadDelay 'FEB readout delay',
  int FebFirstSamp 'The sample for Autogain selection 0..3',
  int TtcPdgDly 'PDG delay, in 50 ps units',
  int TtcFanDly(8) 'TTC Fanout delays (2.5 ns units)' }

integer itb,ierr,Irun
```

DB dictionary

```
* call rh_read('rh/run_03501.hdr')
*
* fill (head) ! run header
* version = 1 ! 11-Nov-2003
*
* fill (conf) ! run config file contents
* version = 1 ! 11-Nov-2003
*
* fill (trig) ! run config file contents
* version = 1 ! 11-Nov-2003
*
* fill (feb) ! run config file contents
* version = 1 ! 11-Nov-2003
*
end
```

filling

ATLSIM is a legal ATLAS
software tool
used for simulation and...
filling NOVA!
(ATLAS detector description DB)

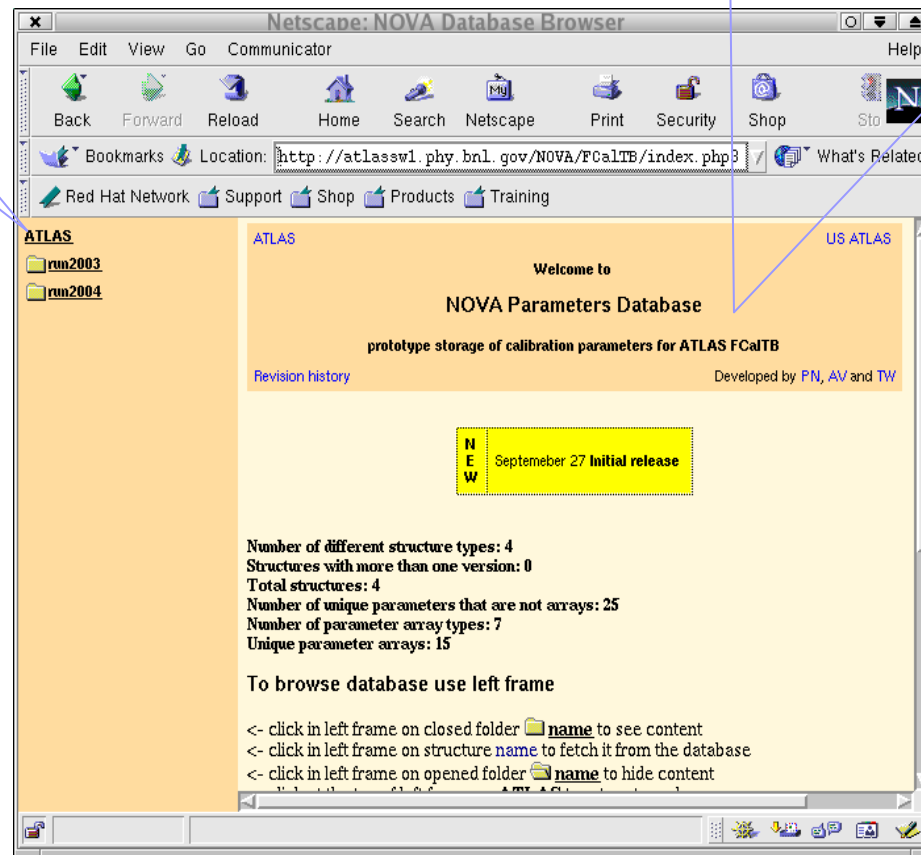
ATLAS

 run2003

 run2004

NOVA Parameters Database

prototype storage of calibration parameters for ATLAS FCalTB



The screenshot shows a Netscape browser window titled "Netscape: NOVA Database Browser". The address bar contains the URL "http://atlasw1.phy.bnl.gov/NOVA/FCalTB/index.php3". The browser interface includes a menu bar (File, Edit, View, Go, Communicator, Help) and a toolbar with icons for Back, Forward, Reload, Home, Search, Netscape, Print, Security, Shop, and Stop. Below the toolbar is a bookmarks bar with "Red Hat Network", "Support", "Shop", "Products", and "Training". The main content area is divided into two frames. The left frame, titled "ATLAS", contains a tree view with folders for "run2003" and "run2004". The right frame, titled "NOVA Parameters Database", displays a welcome message: "Welcome to NOVA Parameters Database", followed by "prototype storage of calibration parameters for ATLAS FCalTB". It also includes a "Revision history" link and "Developed by PN, AV and TW". A yellow box with the text "NEW Septemeber 27 Initial release" is highlighted. Below this, statistics are listed: "Number of different structure types: 4", "Structures with more than one version: 0", "Total structures: 4", "Number of unique parameters that are not arrays: 25", "Number of parameter arraytypes: 7", and "Unique parameter arrays: 15". A section titled "To browse database use left frame" provides instructions: "<- click in left frame on closed folder **name** to see content", "<- click in left frame on structure **name** to fetch it from the database", and "<- click in left frame on opened folder **name** to hide content".

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Location: <http://atlassw1.phy.bnl.gov/NOVA/FCalTB/index.php3>

Red Hat Network Support Shop Products Training

ATLAS

- run2003
 - config
 - CONF
 - TRIG
 - FEB
 - HEAD
 - calib
- run2004

Database directory config - structure HEAD

Module **config** written by P.Gorbunov [\[config code\]](#)
 Module entered database on Sun Nov 9 01:38:23 AM 2003
 Selected structure is of type **HEAD: RUN HEADER**
 Total number of **HEAD** structures in this module is 1
 contents of structure 1:

type	name	value	comment
int	VERSION	1	11-NOV-2003
int	RUNNUMBER	3501	run number
int	RUNTYPE	1	1=phys 2=calib 3=ped 0=special
int	BEAMMOMENT	80	Pbeam, GeV/c
int	BEAMPARTIC	2	1,2,3,4=e,p,i,mu+, 11,=-ve, -1=undef
int	BEAMSPOT	5	beam pos: 1,2,3,4=4U,5=4D, -1=undef
int	RUNDATE	20030910	run start date: YYYYMMDD
int	RUNTIME	26522	run start time: HHMMSS
int	RUNSTOPDAT	20030910	run stop date: YYYYMMDD
int	RUNSTOPTIM	27078	run stop time: HHMMSS
int	EVENTS	12128	Total triggers recorded, w/o BPC cal
int	EVTYPES[0]	11377	Event types
int	EVTYPES[1]	0	Event types
int	EVTYPES[2]	380	Event types
int	EVTYPES[3]	0	Event types
int	EVTYPES[4]	0	Event types
int	EVTYPES[5]	0	Event types
int	EVTYPES[6]	371	Event types
int	EVTYPES[7]	3000	Event types

Total number of parameters in this structure is 19

```
* -----/raid/daq/config/par/runs/run3501.par
RunNumber 3501
RunType 1
RunConf Physics/Beam_Ped_7s_AutoG.v0
DataStore 1 /raid/data
BeamMomentum 80 GeV/c
BeamParticle 2 pi+
BeamSpot 5
MaxEvents 12000
RunDate 20030910
RunTime 063632
RunStopDate 20030910
RunStopTime 064706
Events 12128
EvTypes 11377 0 380 0 0 0 371 3000
```

Features:

- automatic name assignment to variables
- Structure hierarchy is specified at a filling time

```

FebSamples      7
FebGains        0
FebAddr         0x28 0x26 0x3F 0x22 0x30 0x3a 0x21 0x12
miniROD         1   2   3   4   5   6   7   8
FebTimeout      1000
FebDacOffset    0xc00
FebAutoGainThr  1150 3500
FebReadDelay    0x11
FebFirstSample  3
TtcPdgDly       250
TtcFanDly       2 2 0 0 0 0 0 0
    
```

ATLAS

```

run2003
├── config
│   ├── CONF
│   ├── TRIG
│   ├── FEB ←
│   └── HEAD
├── calib
└── run2004
    
```

Database directory config - structure FEB

Module **config** written by P.Gorbunov [\[config code\]](#)

Module entered database on Sun Nov 9 01:38:23 AM 2003

Selected structure is of type **FEB: RUN CONFIG FILE CONTE**

Total number of **FEB** structures in this module is 1

contents of structure 1:

type	name	value	comment
int	VERSION	1	11-NOV-2003
int	FEBSAMPLES	7	number of FEB samples recorded
int	FEBGAINS[0]	0	list of Gains recorded
int	FEBGAINS[1]	0	list of Gains recorded
int	FEBGAINS[2]	0	list of Gains recorded
int	FEBADDR[0]	40	list of FEB SPAC addresses (hex)
int	FEBADDR[1]	38	list of FEB SPAC addresses (hex)
int	FEBADDR[2]	63	list of FEB SPAC addresses (hex)
int	FEBADDR[3]	34	list of FEB SPAC addresses (hex)
int	FEBADDR[4]	48	list of FEB SPAC addresses (hex)
int	FEBADDR[5]	58	list of FEB SPAC addresses (hex)
int	FEBADDR[6]	33	list of FEB SPAC addresses (hex)
int	FEBADDR[7]	18	list of FEB SPAC addresses (hex)
int	MINIROD[0]	1	list of enabled miniRODs
int	MINIROD[1]	2	list of enabled miniRODs
int	MINIROD[2]	3	list of enabled miniRODs
int	MINIROD[3]	4	list of enabled miniRODs
int	MINIROD[4]	5	list of enabled miniRODs
int	MINIROD[5]	6	list of enabled miniRODs
int	MINIROD[6]	7	list of enabled miniRODs
int	MINIROD[7]	8	list of enabled miniRODs
int	FEBDACOFFS	3072	FEB DAC offset (usually 0xC00)
int	FEBAUTOGA[0]	1150	FEB Thresholds
int	FEBAUTOGA[1]	3500	FEB Thresholds
int	FEBREADEL	17	FEB readout delay
int	FEBFIRSTSA	3	The sample for Autogain selection 0..3
int	TTCPDGDLY	250	PDG delay, in 50 ps units
int	TTCFANDLY[0]	2	TTC Fanout delays (2.5 ns units)
int	TTCFANDLY[1]	2	TTC Fanout delays (2.5 ns units)
int	TTCFANDLY[2]	0	TTC Fanout delays (2.5 ns units)
int	TTCFANDLY[3]	0	TTC Fanout delays (2.5 ns units)
int	TTCFANDLY[4]	0	TTC Fanout delays (2.5 ns units)