



Pixel Online Software Preparations for CRUZET 2

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Using the Run Info Database

Problem at CRUZET 1:

For Physics Run under RCMS, Level 0 FM fetches a Run Number from the RunInfo DB and sends it down to us. For a Calibration Run, we disengage our POS from central control and run using PixelSupervisor. PixelSupervisor adds 1 to the previous run number. This creates Run Number collisions in later runs.

Solution:

- ✓ PixelSupervisor can now contact the RunInfo database to book a run number!
- ✓ If one does not configure PixelSupervisor to use RunInfo, run numbers are made up starting from the last made-up run number.

Requirements:

- Install RCMS 3_2_0. <http://cmsdoc.cern.ch/cms/TRIDAS/RCMS/>
- `RCMS_HOME/framework/utilities/runinfo/test/src/rcms/utilities/runinfo/RunNumberBooker.java` should be compiled to give `runnumberbooker.jar`
- An SSH Tunnel if connecting to .cms from outside
- Additional Infospace properties for PixelSupervisor
- Database login name and passwords during operation.

Using the RunInfo Database

If setup outside the .CMS network, open an SSH Tunnel.

```
SSH Tunnel  
ssh -L 2000:cmsonr1-v.cms:10121 -l sdas cmsusr0.cern.ch
```

Add `<UseRunInfo>`, `<DataBaseConnection>` and `<RunSequence>` tags in the Configuration.xml file.

Configuration.xml File Addition

```
<xc:Application class="PixelSupervisor" id="51" instance="0" network="local" group="daq">  
  <properties xmlns="urn:xdaq-application:PixelSupervisor" xsi:type="soapenc:Struct">  
    <UseRunInfo xsi:type="xsd:boolean">true</UseRunInfo>  
    <DataBaseConnection  
xsi:type="xsd:string">jdbc:oracle:thin:@localhost:2000/cms_rcms.cern.ch</DataBaseConnection>  
    <DataBaseUsername xsi:type="xsd:string">pixeltif</DataBaseUsername>  
    <RunSequence xsi:type="xsd:string">cms.pixel.tif</RunSequence>  
  </properties>  
</xc:Application>  
<xc:Module>${BUILD_HOME}/pixel/PixelSupervisor/lib/linux/x86/libPixelSupervisor.so</xc:Module>
```

At FSM state **Configured**, enter:

Login Name = *cms_pix_runinfo*

Password = *mickey2mouse*

Current State: Configured Run Type: FEDBaselineCalibrationWithPixels Configuration Key: 659 Run Number:	Run Number will be booked from the Run Info database. Please enter the database Login Name <input type="text"/> , and the corresponding password <input type="password"/>
<input type="button" value="Configure"/>	<input type="button" value="ConfiguringDone"/> <input type="button" value="Done"/> <input type="button" value="Halt"/> <input type="button" value="Initialize"/> <input type="button" value="Pause"/>

Move to RCMS_3_2_0

- RCMS 3_2_0 released and will be used from Thursday. Release Notes:
<http://cmsdoc.cern.ch/cms/TRIDAS/RCMS/Docs/Manuals/manuals/RN-3-2-0.pdf>
It has been installed in *pixelpro* for compilation against.
- PixelFunctionManager had to be modified for successful compilation. Yet to be committed.

Logging

Problem at CRUZET 1:

When running under Run Control, Job Control is used to spawn our XDAQ processes. This leads to the console output of these XDAQ processes to disappear down Job Control's log. Job Control overwrites its log file and thus we lose all logs.

Status of Solutions:

- ✓ Error Dispatching System is in place for the Half Cylinder Setup and the Point 5 Setup. Each Supervisor has a Local Error Dispatcher (LED). Each LED feeds to a Global Error Dispatcher (GED). The GED pushes them into RCMS' Log Collector.
Requires some debugging by Laurent. Waiting for Viktor to turn on the PIB. Meanwhile trying to setup EDS at the Pilot Run Detector.
- ✓ PixelFunctionManager moves Job Control's logs (our `std::cout`) into a time & process stamped file into another area.

Un-configuring Unused FEDs Appropriately

Problem at CRUZET 2:

To calibrate the Pilot Run Detector we used a different FED from that used with the PIB. However, the FED of the PIB continued to send SLink data to the EVB even though it was masked off by Central Run Control! We do not un-configure FEDs we do not use in a given configuration to ignore triggers.

Status of Solution:

- ✓ FED Control Register set to 0x8 during Halting
- ✓ FED Mode Register set to 0x1 during Halting

Monitoring FED FIFOs

Error FIFO: Stale events in the Error FIFO .err files observed. Yet to sort out with Will

Spy FIFO 3: Pre-scaling required. Not implemented yet.

TTS FIFO: In the light of one incident where we went into an sTTS BUSY state, it might be useful to write the TTS FIFO's contents to file. Not done yet.

Anders will write a new configuration object that specifies which FIFOs will be monitored and with what pre-scale. Not done yet.

Disk Space, Baseline Correction, Basic DQM Capabilities

Disk Space: We could do with the TB disks in the next run. **Status Unknown.**

FED Baseline Correction: We could look at its variation over the scale of days as suggested by Anders. Viktor worked on a ROOT program. (I might try to put it in the FED Low Level GUI if I get time.)

DQM Plots: Perhaps some basic DQM capabilities would be useful for the next run for producing occupancy plots etc? Simple ROOT scripts would do too. **Status Unknown**