

Web Technology Usage at ISIS

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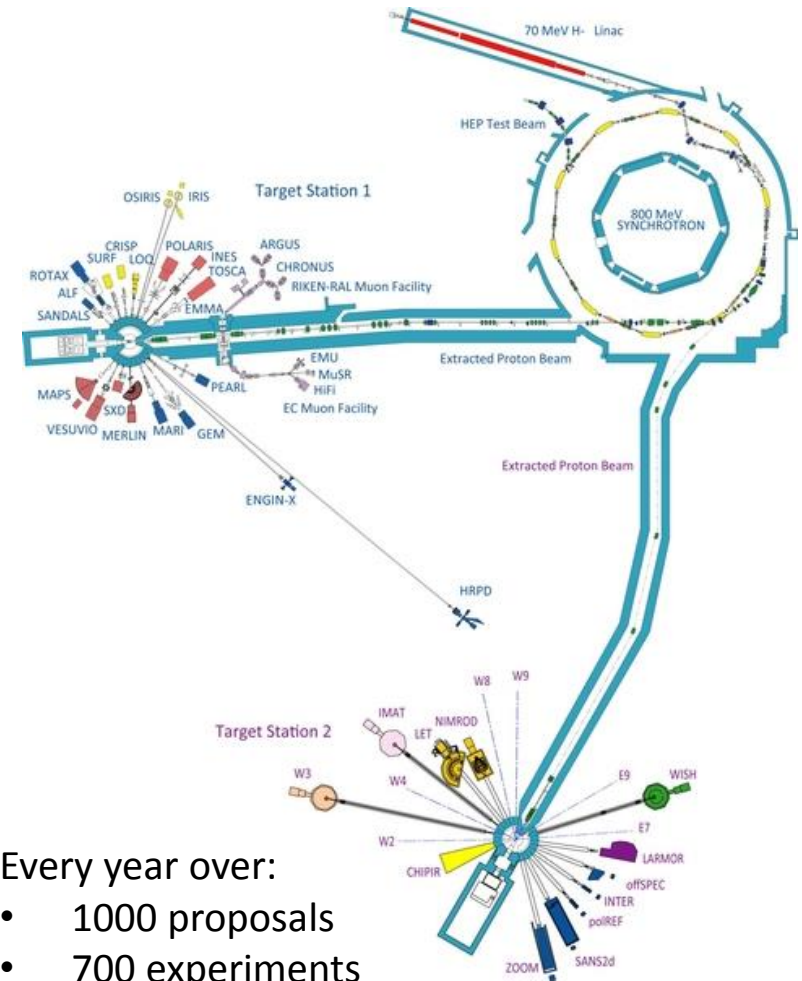


Science & Technology Facilities Council

ISIS

ISIS Facility

- Pulsed neutron and muon source
- ~30 experiment beamlines
- World leading materials research facility



Every year over:

- 1000 proposals
- 700 experiments
- 400 publications



Instrument Control

- EPICS base 3.15.5
- Eclipse GUI based on C S Studio
- Python scripting
- Running on Microsoft Windows x64



Web Technology Usage

- Only use web for display of data
- Main application is “web dashboard”
 - a summary of the instrument state for user
- Separately also use WebAgg matplotlib backend
 - For plotting in IBEX client GUI
 - Allows locating plot next to PyDev console



POLARIS is RUNNING

Title: shutter closed - internal test (HT card replaced) (beam to target) Users: Smith	Good / Raw Frames: 5430723/5430723 Current / Total: 0.000 uA/3870.960 uA hour Monitor Counts: 12 count	Start Time: Fri 31-May-2019 17:39:50 Run Time: 30 hr 10 min 13 s Period: 1/1
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Configuration: Polaris_base_sample_changer

Run Information

- Run Status: RUNNING
- Run Number: 00118851
- RB Number: 0
- User(s): Smith
- Title: shutter closed - internal test (HT card replaced) (beam to target)
- Start Time: Fri 31-May-2019 17:39:50
- Total Run Time: 30 hr 10 min 13 s
- Period Run Time: 30 hr 10 min 13 s
- Good Frames (Total): 5430723
- Good Frames (Period): 5430606
- Raw Frames (Total): 5430723
- Raw Frames (Period): 5430606
- Current Period: 1
- Number of Periods: 1
- Period Sequence: 1
- Beam Current: 0.000 uA
- Total Uamps: 3870.960 uA hour
- Count Rate: 0.000
- DAE Memory Used: 91609 byte
- Total DAE Counts: 2147483647 count
- DAE Timing Source: Internal Test Clock
- Monitor Counts: 12 count
- Monitor Spectrum: 11
- Monitor From: 2500.000 us
- Monitor To: 3500.000 us
- Number of Time Channels: 7793
- Number of Spectra: 3008
- Shutter Status: CLOSED
- DAE Simulation mode: No

Blocks

Jaw_set

- h_gap1: 55.667
- h_gap2: 39.732
- h_gap3: 30.820
- h_gap4: 27.285
- h_gap5: 17.500
- v_gap1: 63.843
- v_gap2: 54.501
- v_gap3: 49.265
- v_gap4: 47.206
- v_gap5: 42.200

Sample_changer

- Sample: 11
- Target: 0 (INVALID/UDF_ALARM)
- Move_finished: 1

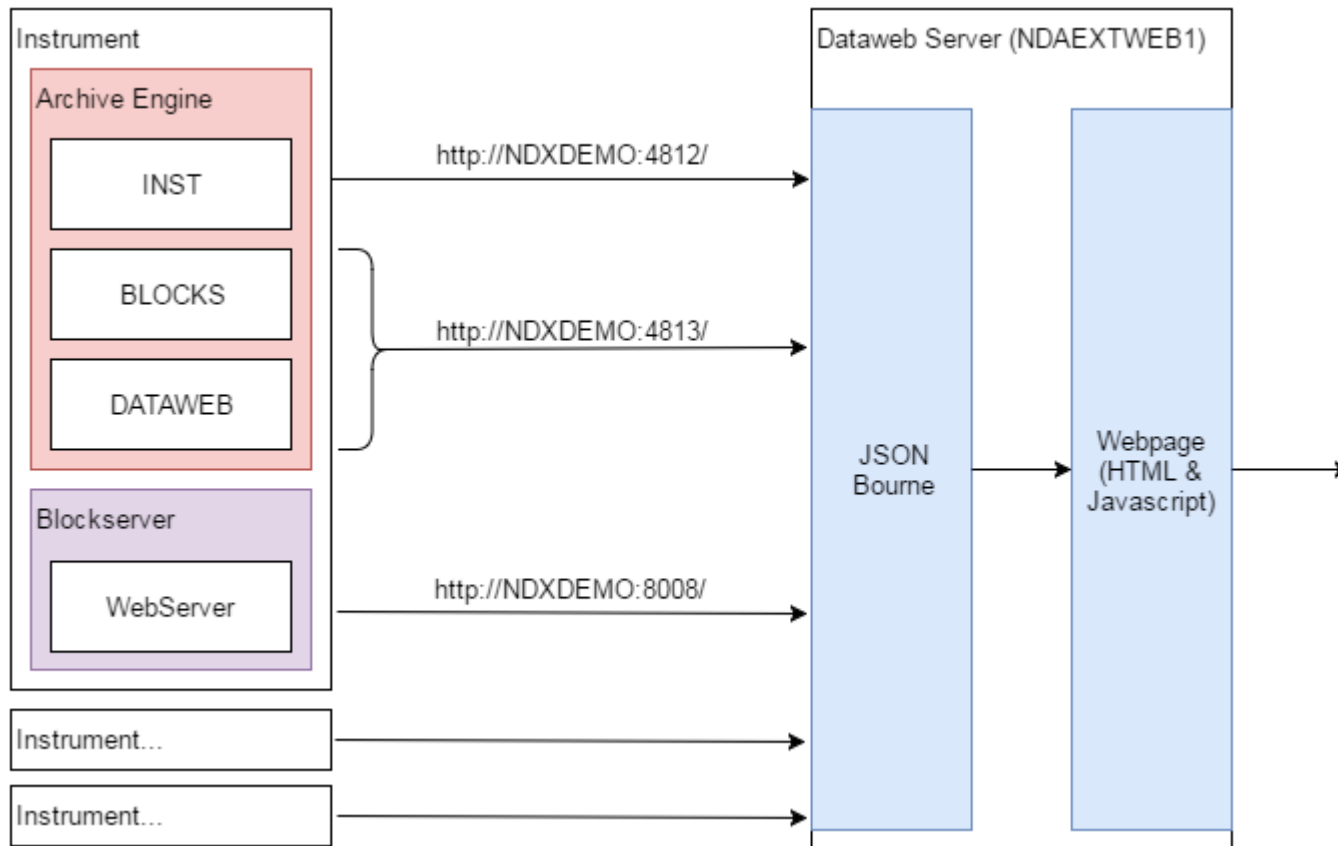
Beam

- TS1_beam_current: 0.000 uA
- Shutter_status: CLOSED
- Actual_beam_current: 0.000 uA (MINOR/LOW_ALARM)
- ISIS_beam_energy: 800 MeV

Vacuum

- Tank: 0.056 mbar
- Pump: 0.025 mbar

Web Dashboard Architecture



Web Dashboard Operation

- CSS Archive engine provides data as JSON
 - Several engines per instrument
- JSON Bourne process amalgamates data
 - Acts as a cache
 - Also groups it using blockserver configurations
- Client JavaScript (bootstrap) page reads data
 - Currently refreshed by polling



Easy to reformat data

The screenshot displays the IBEX status dashboard. The top section features a grid of instrument status boxes, each representing a different instrument and its current state. The bottom section shows a list of pipeline jobs, each with a progress indicator and a status icon.

Instrument	Status
ALF	SETUP
CRISP	UNKNOWN
DEMO	SETUP
EMMA-A	SETUP
ENGINX	SETUP
ENGINX_SETUP	SETUP
GEM	RUNNING
HRPD	UNKNOWN
IMAT	SETUP
INES	SETUP
IRIS	RUNNING
IRIS_SETUP	SETUP
LARMOR	SETUP
LET	SETUP
LOQ	SETUP
MAPS	RUNNING
MARI	RUNNING
MERLIN	SETUP
MUONFE	SETUP
OSIRIS	SETUP
POLARIS	SETUP
RIKENFE	SETUP
SANDALS	RUNNING
SELAB	UNKNOWN
SOFTMAT	SETUP
TOSCA	SETUP
VESUVIO	RUNNING
ZOOM	RUNNING

Last updated at: 11:53:27

Job Name	Status
ConfigChecker #690	Running
EPICS_IOC_RHEL6 #5342	Running
EPICS_IOC_Windows7_x64_CLEAN #457	Running
EPICS_IOC_Windows7_x64_devel #1079	Running
EPICS_IOC_Windows7_x64_static_CLEAN #491	Failed
EPICS_IOC_Windows7_x64 #846	Running
EPICS_repo_checks #12969	Running
genie_python_pipeline #337	Running
ibex_gui_pipeline #1274	Running
IBEX_Wiki_Check #765	Running
inst_servers_pipeline #107	Running
inst_servers_python_3 #2	Running
json_bourne #20	Running
System Tests #659	Running
System_Tests_IOCs #3309	Running
System_Tests_Squish #550	Running



Future

- Enable web dashboard to show graphs of historical data
- Starting to think about tablet computers on beamlines:
 - Smaller screen, less powerful
 - Potential application as a motion “jog box”
 - Looking at CS Studio Phoebus, but web an option?

