TUPV048

UPDATES AND REMOTE CHALLENGES FOR IBEX, BEAMLINE CONTROL AT THE ISIS PULSED NEUTRON AND MUON SOURCE

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What is IBEX?

- Client-server experiment control system
- EPICS (server), Eclipse/RCP/CS Studio (GUI)
- Running on 2/3 of instruments at ISIS
- Includes script generator (see TUPV049)
- Additional view for reflectometry instruments
- A *manager mode* can restrict user operations

IBEX Main GUI

IBEX Reflectometry View

IBEX Testing

- Emulators written for devices
  - Using LeWIS package
- EPICS IOCs tested against emulators
- GUI tested using Squish

Remote Experiment Access

- COVID-19 affected users' ability to visit the facility
- Requirements gathered, both read/monitor and full access required

IBEX Web Dashboard

Read / Monitor Access

- IBEX client on Linux cloud analysis system (IDAaaS)
- Enhanced web dashboard to graph historical data values

Full Remote Experiment Access

- Provided by RealVNC cloud connectivity solution
- Dedicated instrument computers for access
- Required 2FA, access only for duration of experiment

Plot of single value from dashboard

Building and Deploying Systems

- Re-deploy operating system and applications
- Scripted, version controlled, repeatable operation
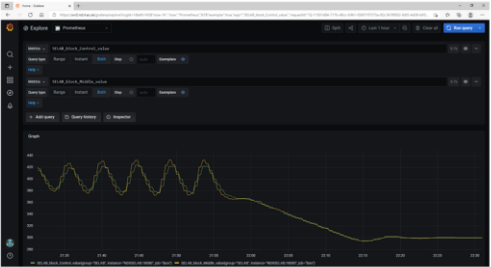- Use virtual machines and Virtual Hard Disks (VHDs)

Windows 10 OS image → MDT → Deployment network share

Installer (MSI) based application packages → MDT → ISO Boot File

IBEX Server Build

VAR VHD

SETTINGS VHD

IBEX GUI Build

APPS VHD

Non-installer (ZIP) based application packages

SCRATCH VHD

OS VHD

Instrument Virtual Machine
- Attach VHDs
- Boots from ISO
- Installs OS from network

Remote Monitoring Via Web
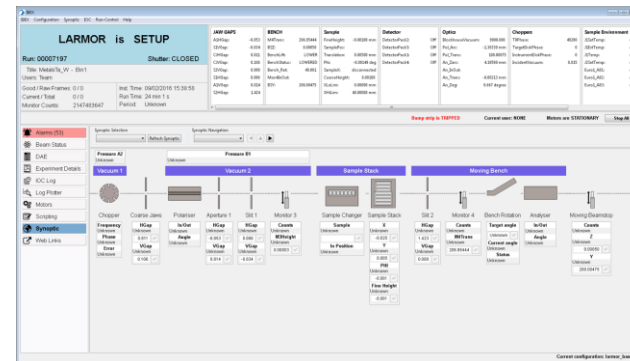
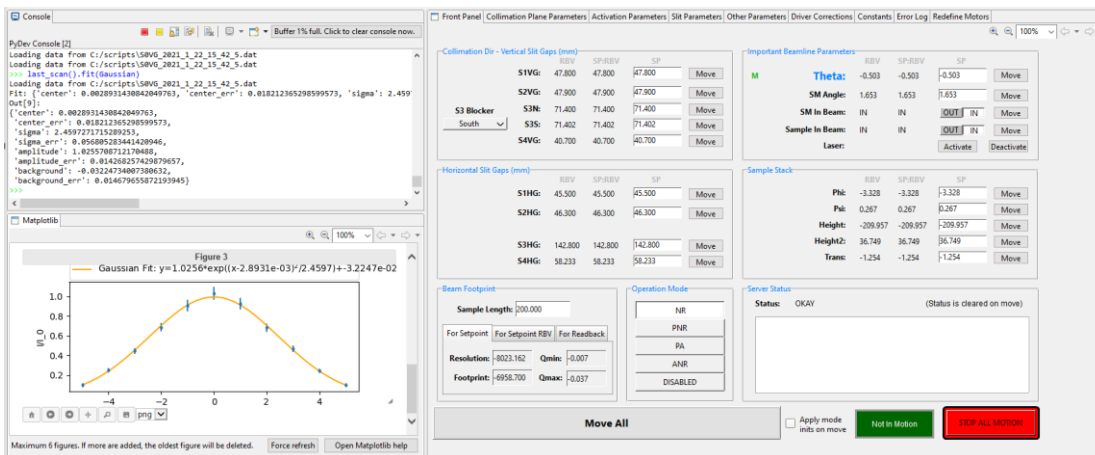Uses Grafana, with the Prometheus monitoring tool as data source

Grafana explorer view, which integrates well with Prometheus

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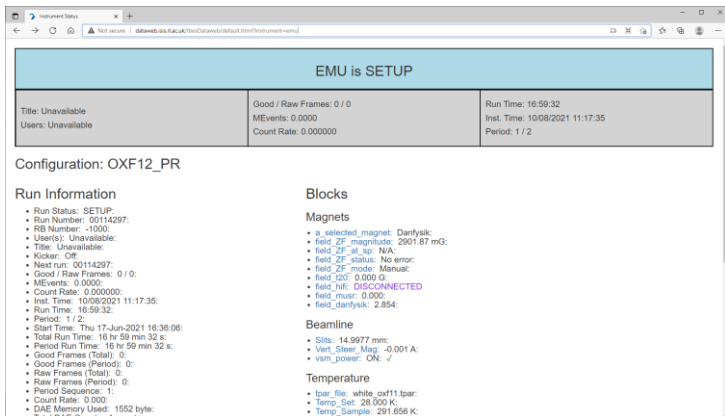➢ A *manager mode* can restrict user operations

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