Streaming at ISIS





Architecture



Architecture



Deployment

Single, central Kafka cluster and monitoring stack, deployed using Ansible
Other software is per beamline
File Writer not yet deployed

Instruments



VESUVIO



VESUVIO



Feedback

- Using Mantid's Instrument View Owen will talk more about it.
- Can tell basic things like whether there are neutrons, the sample is in roughly the right place, hasn't fallen off.

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• That is already enough to be useful and save beamtime.





MARI - Feedback

- Recently gained new detectors
 No *instrument definition file* yet, but could live histogram and view time of flight histograms.

MARI - Feedback

¥ *		Start Live Data Monitoring 🔷 🔨 🔿
Instrument:	SANS2D ~	Processing Step Post-Processing Step
Connection:	[Custom] ~	Select either Algorithm or Python Script under "Processing" to perform processing on each chunk of live data. In the python script 'input' is a reference to the input workspace and 'output' is a string of the name of the output
Conn	nection Parameters	workspace.
Listener Type:	KafkaEventListener ~	Rebin
Address String:	livedata.isis.cclrc.ac.uk:9092	Algorithms
Now Start of Run O Update Every: 5 No Processir Algorithm Python Scrip Preserve Ever Terserve Ever Preserve Ever accumulates a R accumulates a	Starting Time minutes ago minutes ago minutes ago second: Processing ng t t t t t t t t t t t t t t t t t	✓ Transforms // MatchPeaks v.1 / Axes // Distribution Grouping // Masking // Masking // Masking // ThegrateEPP v.1 // IntegrateEPP v.1 // IntegrateEPP v.1 // IntegrateEPP v.1 // IntegrateEPP v.1 // Rebin v.1 // Rebin/Pulsaf(Rebin v.1 // Reb
Accumulation Me	thod: Replace ~	InnutWorkspace
No Processir Algorithm Python Scrip At Run Transition: Accumulation Wo	Post Processing ng ot : Stop vrkspace:	OutputWorkspace Params 0,1.10 0 PreserveEvents 0 Instant 0 Instant
Output Workspac	rebinnedData	
?		Keep Open 🗌 Run Close









ZOOM - Feedback

- New beamline, Instrument View useful for commissioning detector.
- Having the live view in Mantid may be confusing for users, which Window should they use for what?
 - For ESS, Instrument View is in NICOS already.
 - For ISIS, visualisation is being added to IBEX control interface





LARMOR - feedback

- Using Instrument View (3D or 2D projections), it has saved beamtime already.
- String type PVs are not forwarded from EPICS -> Solved
- Mantid Live Listener not robust to some parameters changing between experiment runs -> Mostly solved
- Live Listener takes a long time (>15s) to stop -> Not solved yet

Summary

- Data streaming is running well at ISIS
- Postive feedback from users even just using simple visualisationHave already established a feedback loop with instrument scientists

Next

- Deploy ESS File Writer and compare output files with ICP written files
- Deploy to more beamlines!