

# Developing Status of PLS-II Beamline Data Acquisition Software Using Bluesky

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# 2024 Spring EPICS Collaboration Meeting

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POSCO International Center  
Asia/Seoul timezone

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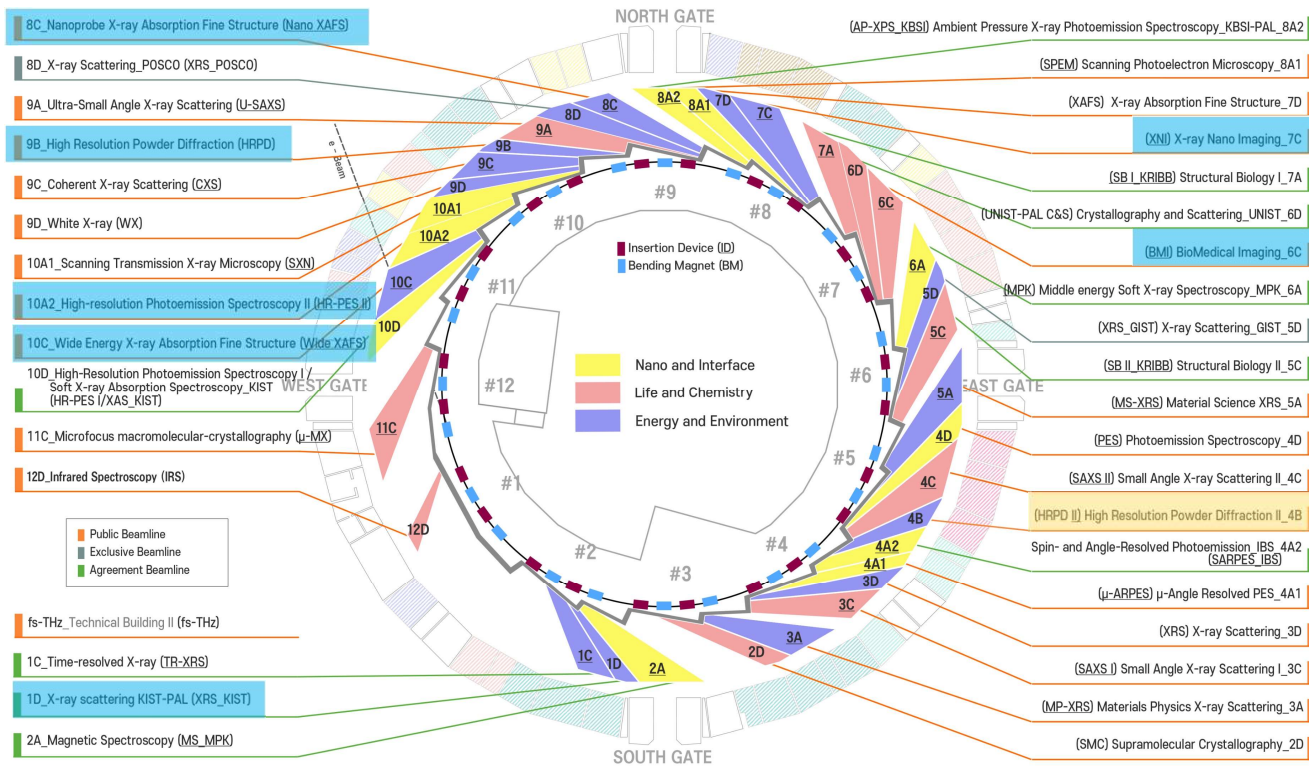


Callum Forrester 2	Re: <a href="#">bluesky/bluesky</a> FailedStatus only gives top level error information (Issue #1603) - com/bluesky/bluesky/issues/1603#issuecomment-2058927343 You are receiving this because you are subscribed to this	오후 9:03
Jamie, Pete, Tom 11	<a href="#">bluesky/ophysd</a> Add Long name to OphyObj (PR #1187) - from what bluesky expects "describe" to produce: https://github.com/bluesky/bluesky/blob/5d94da730e5e1e6432420bab92a7f92ec06c8a49	오후 8:04
Jakub, Tom 2	<a href="#">bluesky/bluesky</a> [ENH] Add __main__.py and entrypoint for checking version info. (PR #1699) - ["bluesky/dev/python,zmq,common,tools,streamz,plotting.cmd,log"] [project.scripts] bluesky	오후 7:58
Viltord	<a href="#">bluesky/bluesky</a> Remove nose package from dev dependencies list (PR #1704) - com/bluesky/bluesky/issues/1678 #8 How Has This Been Tested? &lt;!-- Please describe in detail how you tested your	오후 7:21
Giles Knap	<a href="#">bluesky/bluesky</a> Dont collect interactive tests (PR #1703) - com/bluesky/bluesky/pull/1703 -- Commit Summary -- * fixes #1689: dont collect interactive tests -- File Changes -- M	오후 6:53
Tom, Thomas, Callum 3	<a href="#">bluesky/bluesky</a> Listifying plan with "read" or "locate" prints message about relative positions (Issue #1552) - com/bluesky/bluesky/issues/1552#issuecomment-2058692793 You are receiving this because you are subscribed to this	오후 6:52
Tom, Callum 3	<a href="#">bluesky/bluesky</a> Make 'bps.checkpoint' return the seq_nums of all open runs (Issue #1640) - com/bluesky/bluesky/issues/1640#event-12486373471 You are receiving this because you are subscribed to this thread	오후 6:48
Gary Yendell 2	<a href="#">bluesky/bluesky</a> Expose API to set title on LiveGrid plots (PR #1702) - com/bluesky/bluesky/pull/1702#issuecomment-2058668866 You are receiving this because you are subscribed to this	오후 6:39
Tom, Callum 2	<a href="#">bluesky/bluesky</a> Looks like configure() no longer re-requests obj.describe() (Issue #1659) - com/bluesky/bluesky/issues/1659#issuecomment-2058668743 You are receiving this because you are subscribed to this	오후 6:39
Callum Forrester	<a href="#">bluesky/bluesky</a> Drop support for Python 3.8 and 3.9 (Issue #1701) - com/bluesky/bluesky/issues/1670#issuecomment-2043051456_ -- Reply to this email directly or view it on GitHub: https	오후 5:43
Callum, Thomas, 10	<a href="#">bluesky/bluesky</a> Support Python 3.11 and 3.12 (Issue #1670) - com/bluesky/bluesky/issues/1670#issuecomment-2058567413 You are receiving this because you are subscribed to this	오후 5:42
Giles, Giles 4	<a href="#">bluesky/bluesky</a> Fix for #1693 - tests failing in devcontainer (PR #1700) - com/bluesky/bluesky/pull/1700#event-12485046776 You are receiving this because you are subscribed to this thread	오후 5:29
Thomas, Dan, 15	<a href="#">bluesky/bluesky</a> MNT: numpy 2.0 compatibility (PR #1672) - com/bluesky/bluesky/pull/1672#pullrequestreview-2002015182 You are receiving this because you are subscribed to	오후 4:42
Thomas, Max, 6	<a href="#">bluesky/bluesky</a> ENH: allow passing in an axes factory to LivePlot and friends (PR #1653) - com/bluesky/bluesky/pull/1653/files/ddd04c7e1b5df84b4bb6052207b7f5939cfff6a_dba9f6670def63638e67a4239242f2e85b72eb5	오후 4:40
Phil, Thomas 12	<a href="#">bluesky/bluesky</a> Remove dependency on Streamz (PR #1698) - com/bluesky/bluesky/pull/1698/files/3763c8baa81788217062595f4b5e71f88313221_fbdeb82429d7259924242f125eac75434f66f32	오후 4:32
Stanislav, Callum, 3	<a href="#">bluesky/bluesky</a> Dependencies: streamz - outdated and used only in one test file (Issue #1692) - like "bluesky-kafka" since that is the primary integration focus. - Pulsar creates a dependency challenge that isn't	오후 3:48
Eugene, Eugene 58	<a href="#">bluesky/bluesky</a> Callback to write documents to Tiled (PR #1660) - com/bluesky/bluesky/pull/1660/files/becc03ca5b310d290678fd6403445c9e8dbf9c6_c565a6694f3be54a8d2f88a32a5d77f6a35de95	오후 3:25
Dominic, Thomas 3	<a href="#">bluesky/bluesky</a> Remove object_plane.py and associated text (PR #1694) - com/bluesky/bluesky/pull/1694#event-12473385894 You are receiving this because you are subscribed to this thread	오후 1:21
Dominic, Thomas 2	<a href="#">bluesky/bluesky</a> Fix "fuzz.py" (Issue #1697) - com/bluesky/bluesky/issues/1697#issuecomment-2057182962 You are receiving this because you are subscribed to this	오후 12:49
Abigail Emery 4	<a href="#">bluesky/bluesky</a> Make Kickoff and complete take multiple arguments (Issue #1662) - com/bluesky/bluesky/issues/1662#event-12472622606 You are receiving this because you are subscribed to this thread	오후 12:39
Abigail, Tom, 15	<a href="#">bluesky/bluesky</a> Alter ko and complete plan stubs to take multiple flyables (PR #1663) - com/bluesky/bluesky/pull/1663#event-12472622321 You are receiving this because you are subscribed to this thread	오후 12:39
flow, Stan, Thom, 4	<a href="#">bluesky/bluesky</a> Hidden "xray-vision" dependency is still not dealt with anywhere (Issue #1636) - com/bluesky/bluesky/issues/1636#issuecomment-2057076205 You are receiving this because you are subscribed to this	오후 12:02

24/4/16  
(1 day)

- Received over 20 issue and code modification notices in just one day's email.
- Observed upgrades involving hundreds of lines of code and comments.
- This level of activity exceeds what individuals or small groups can achieve, highlighting the need for collaboration.
- These reasons support the integration of bluesky into our beamline infrastructure.

# Current Status of PLS-II Beamline Utilizing Bluesky



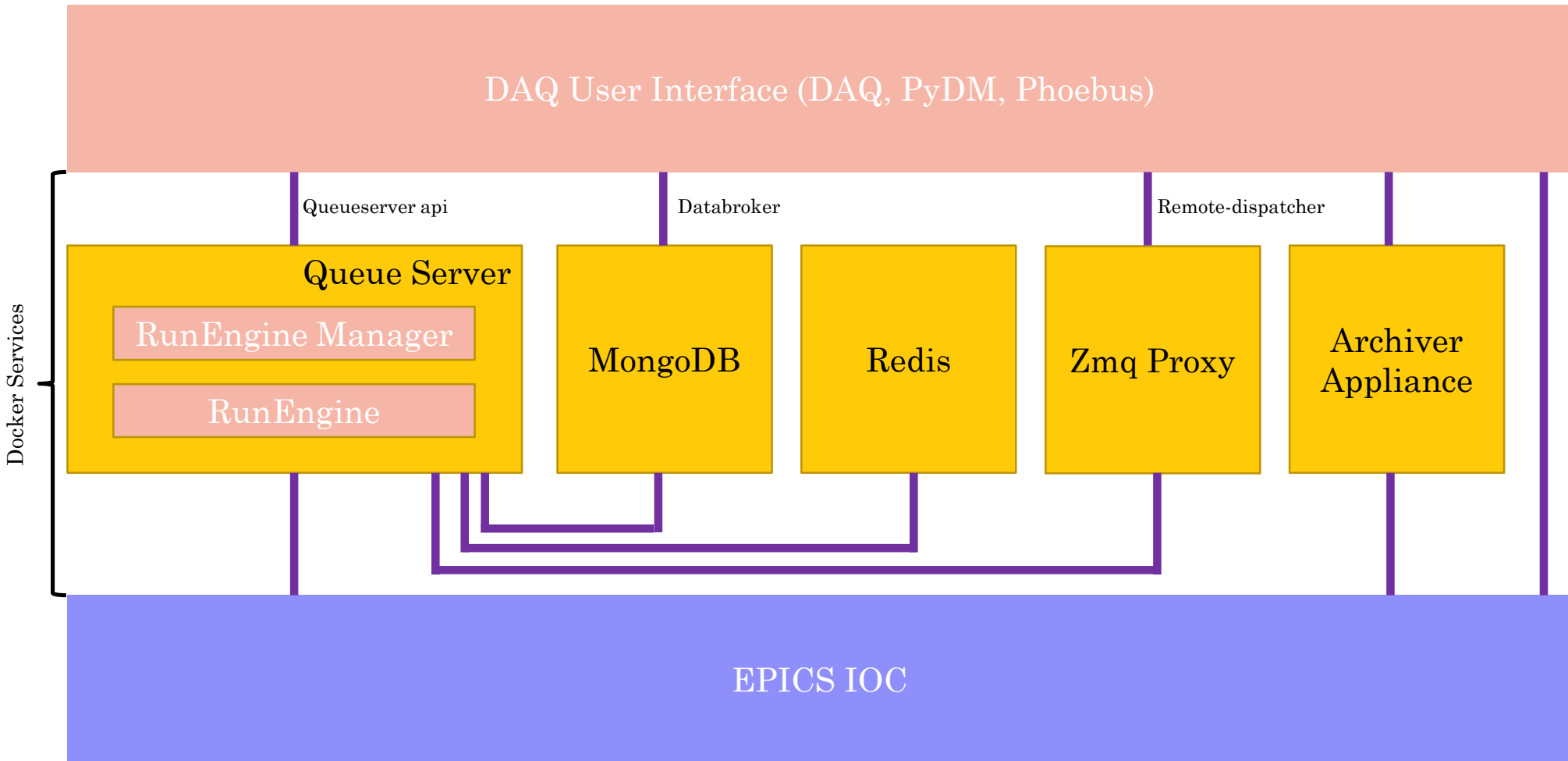
Blue : Beamlines utilizing Bluesky  
 Yellow : Under developing

Category	Beamlines
XAFS	1D, 8C, 10A2, 10C
Imaging	6C, 7C, 8C
HRPD	4B, 9B

- Out of 36 beamlines, Bluesky is currently used in 7 beamlines, including 4 for XAFS, 2 for Imaging and 1 for HRPD. Additionally, development of DAQ programs using Bluesky is currently underway in 2 beamlines.
- Gradual shift towards using the actively developed and widely utilized Bluesky project from various accelerator research institutions

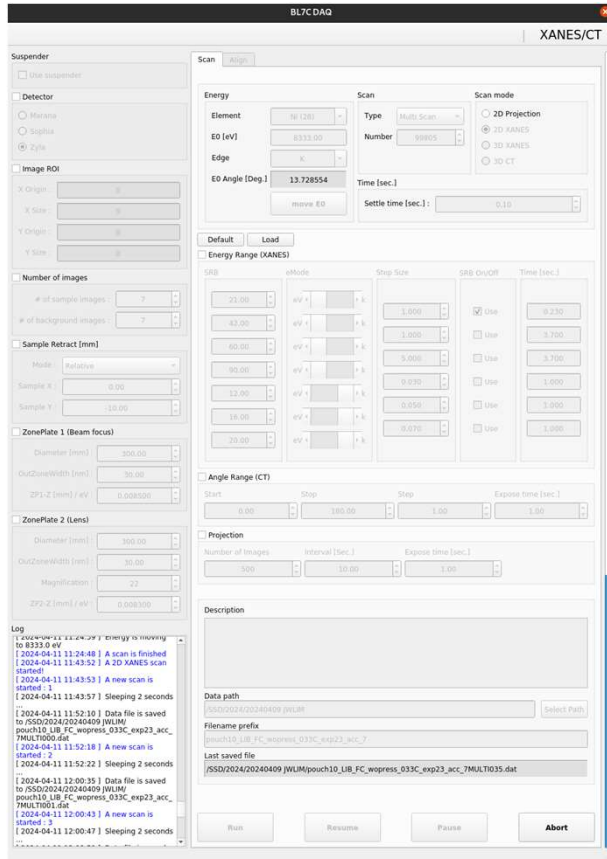


# HRPD Beamline (9B) Program schematics

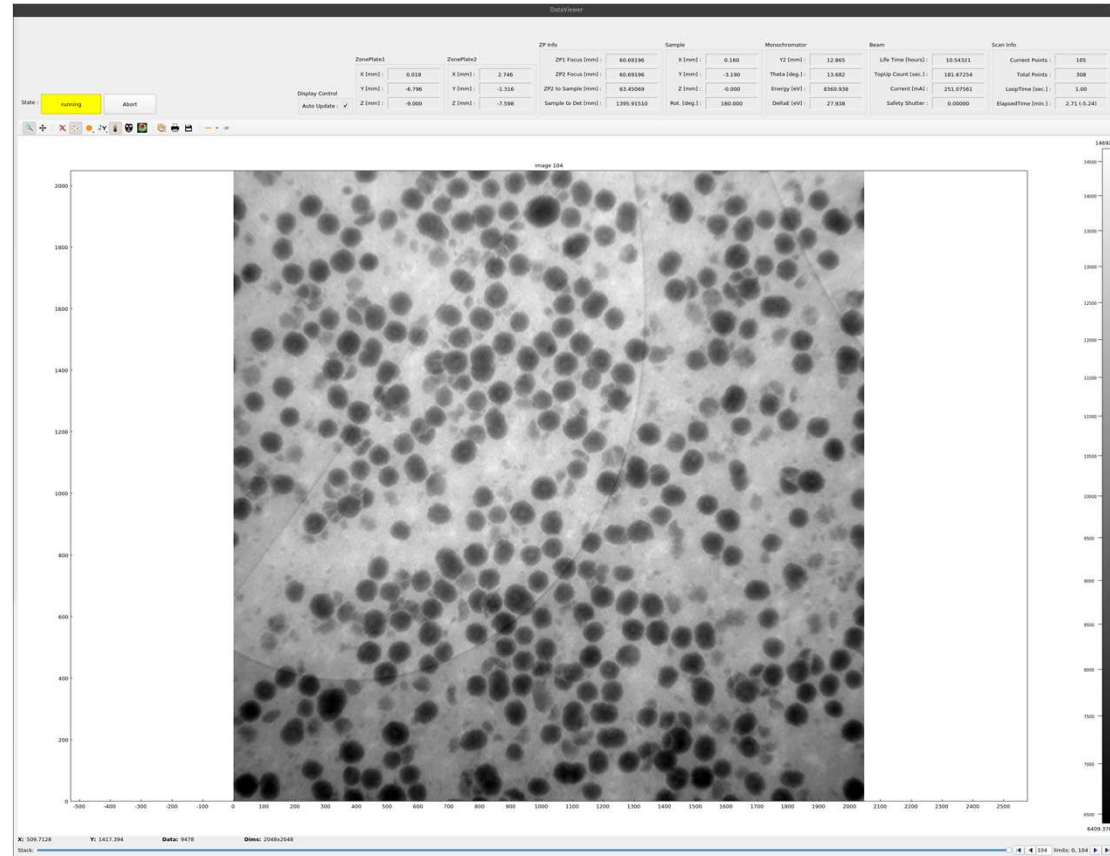


# Beamline (7C) DAQ User interface and PyDM Displays

Control Panel



Data Viewer



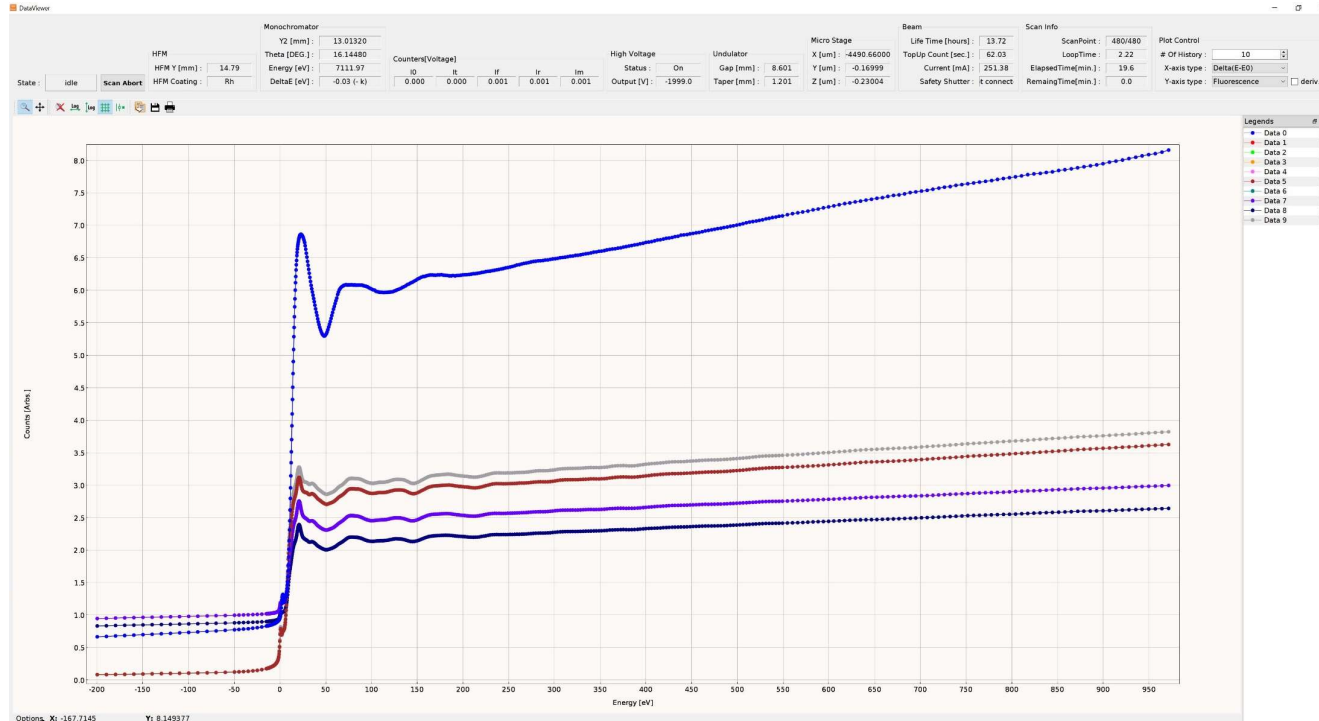
Two-dimensional XANES imaging of a battery cell, and it has been found that providing a GUI for standardized beamline experiments results in high satisfaction.

# EXAFS Beamline (8C) DAQ User interface

## Control Panel

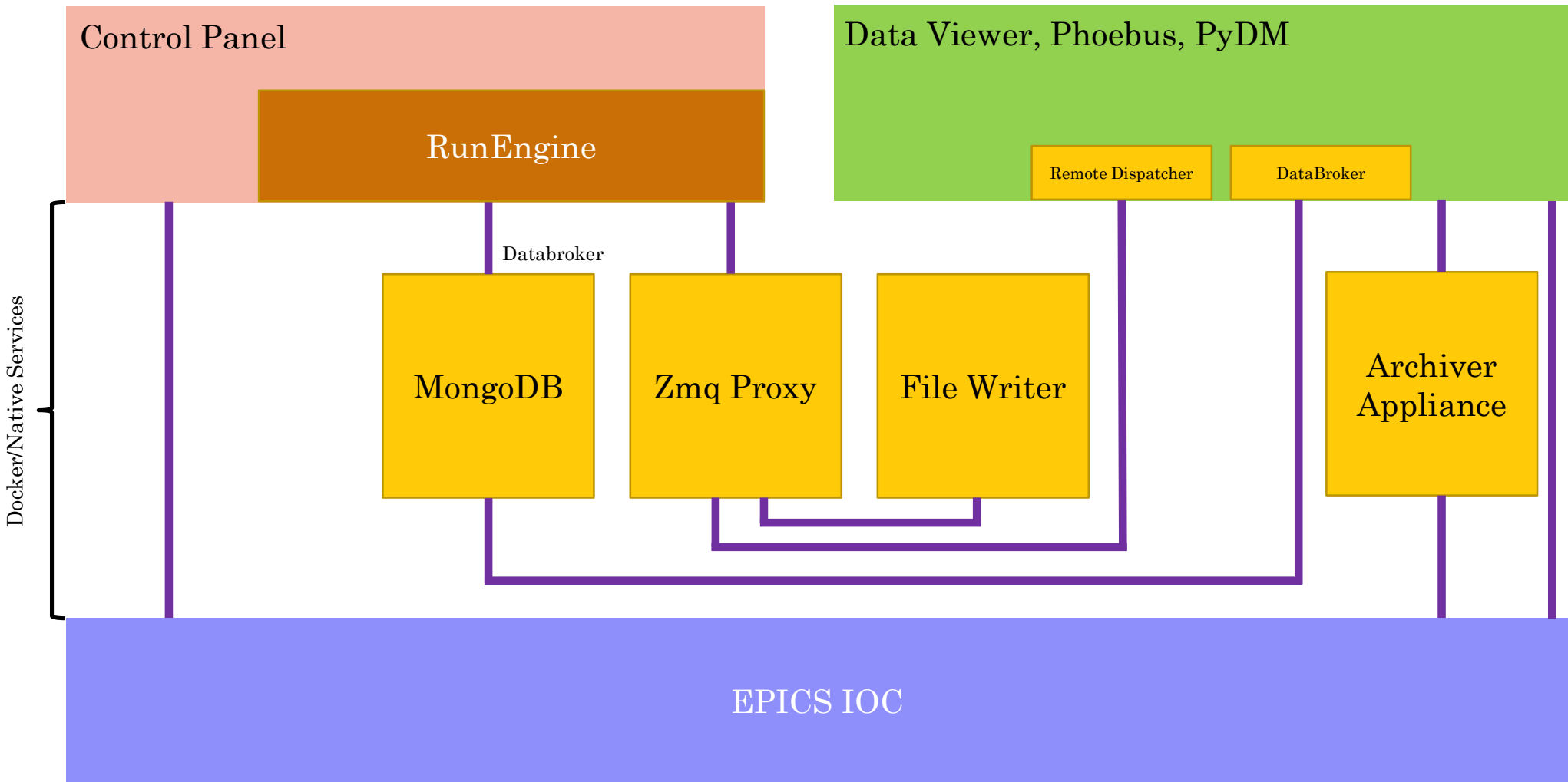
Sample Name	Position	# of Scans
1 Ni_MF-3-52_1	5	1
2 Ni_MF-3-52-5-1	6	1
3 Ni_MF-3-52-5-2	7	1
4 Ni_MF-3-52_2	8	1
5 Ni_MF-3-52_3	9	1

## Data Viewer



- Shared User Interfaces : The UI for both beamlines(7C, 8C) shares common features, optimized for energy scans.
- Automated Sample measurement: Users can input sample names, positions, and measurement counts into a table format.

# 7C, 8C Beamlines User interface Schematics





# Summary and future works

- **User-Friendly Design:** Transitioning beamline interfaces to Bluesky while maintaining familiarity for ease of use by existing users.
- **Backend Services:** Utilizing Docker for efficient management of backend services.
- **Remote Experimentation:** Planning to conduct web-based remote experiment tests using QueueServer.
- **Continuous Bluesky Integration:** Proactively implement Bluesky in new and upgraded beamlines to enhance data acquisition.