



The new ALICE operational logbook for LHC Run 3

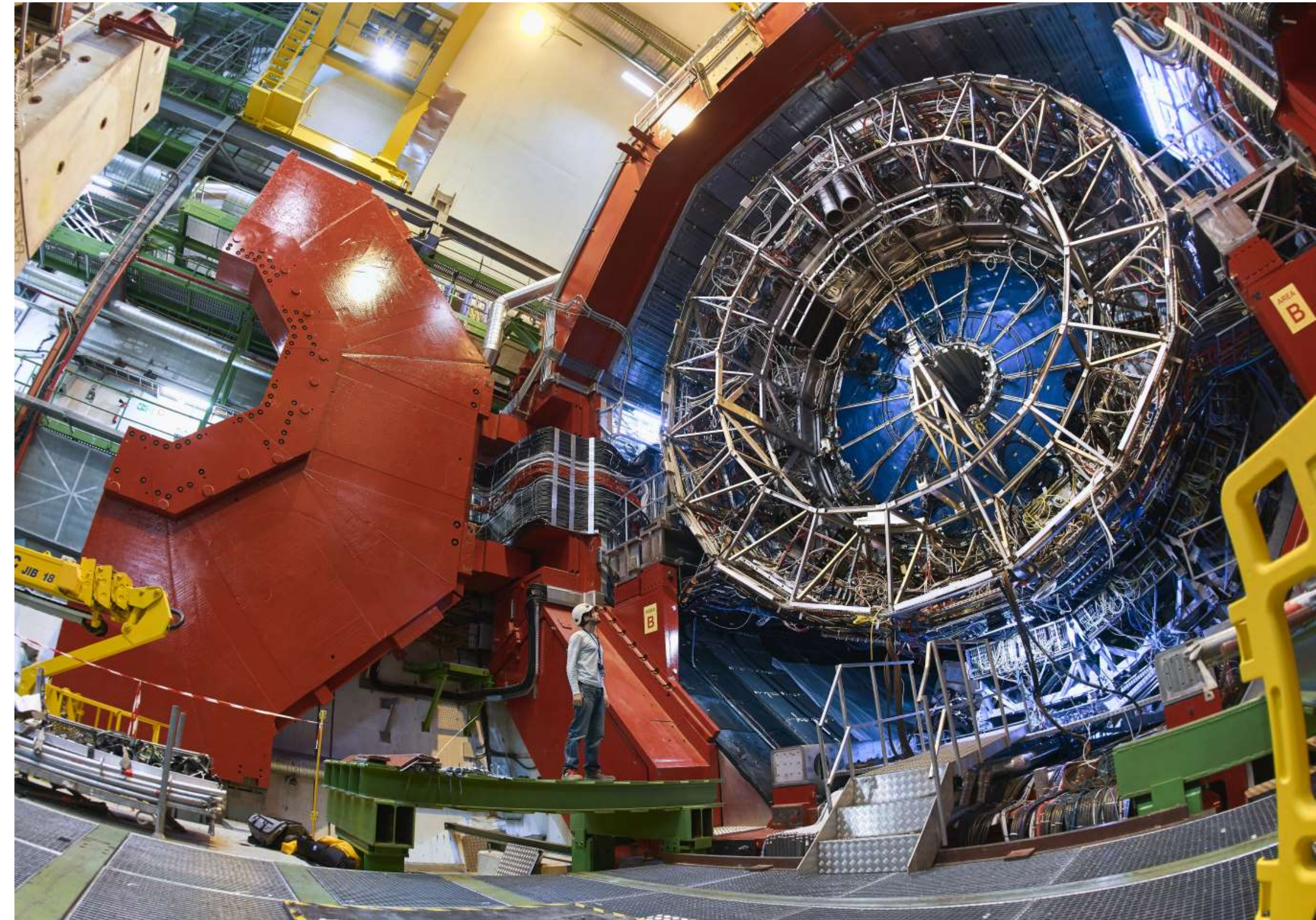
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On behalf of the O²/FLP project



Context

- Context: O² Upgrade
- Focus on GUIs
 - Bookkeeping application



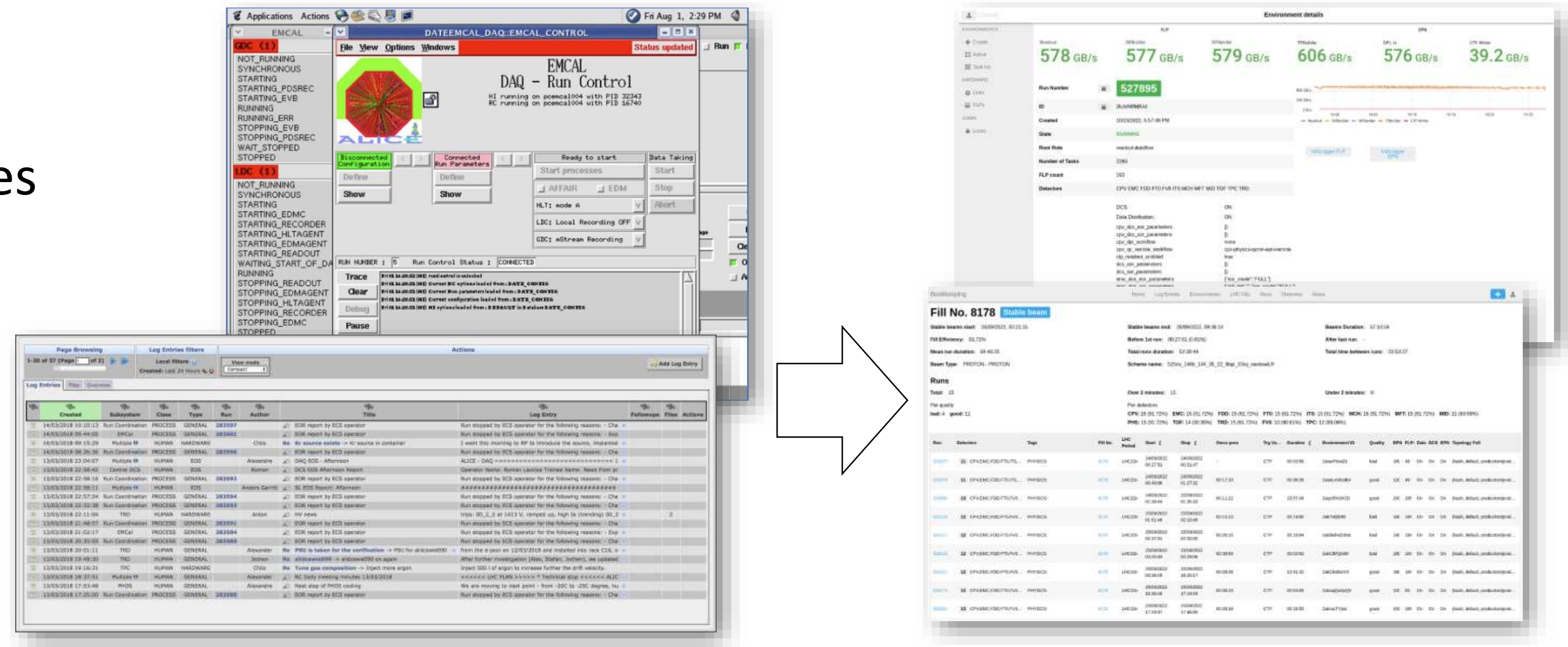
New web GUIs

- Technologies improved considerably, especially web applications

- Users' expectations increased
 - Fluid navigation
 - Clean user experience
 - Multiple devices & OS

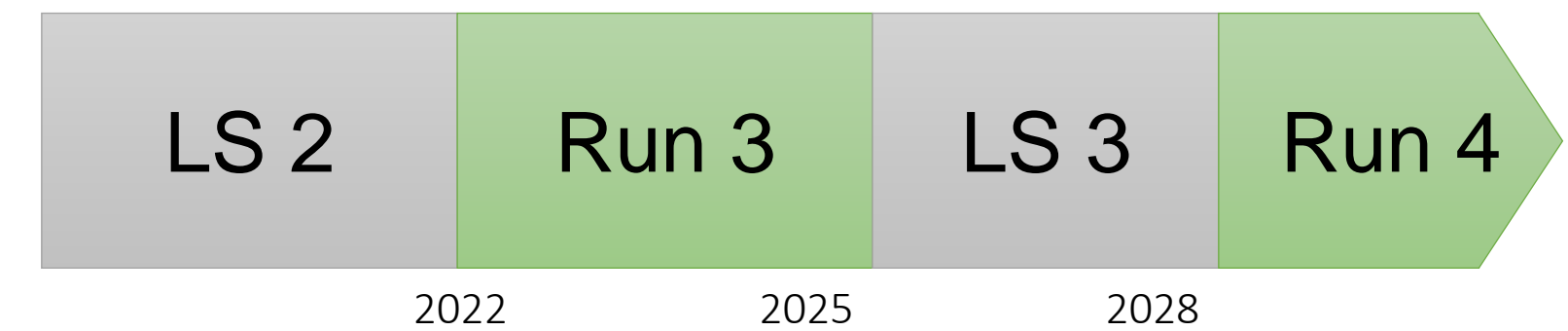
- New set of GUIs based on web technologies

- Available from everywhere
- Flexibility
 - Multiple platforms
 - Multiple OS
- Reduced user input errors
 - Improved UX
 - Automatic workflow
- Quick and easy access to experiment information



Constraints for the web GUIs

- Objective : Run 3 and 4
 - Last about 10 years
- Projects must be robust
 - Proven technologies
- Open to new features
 - New needs will appear while being used
- Easiness for developers to integrate their applications



Why a logbook

- Scientific experiment require logbook
 - What was configuration and context at any time during operation
 - Why configuration changed
 - Logging system

Run-Coordination use-case

- Statistics computed automatically
 - Evaluate the amount of beam time effectively used
 - See why data taking ended
 - See global statistics or per detectors
- Can see:
 - What issues occurred
 - Under which conditions
- Help to improve the overall efficiency

Bookkeeping Home Log Entries Environments LHC Fills Runs Overview About

Fill No. 8178 Stable beam

Stable beams start: 24/09/2022, 00:21:15 Stable beams end: 26/09/2022, 09:36:14 Beams Duration: 57:14:59
 Fill Efficiency: 91.72% Before 1st run: 00:27:51 (0.81%) After last run: -
 Mean run duration: 04:46:25 Total runs duration: 52:30:44 Total time between runs: 03:53:37
 Beam Type: PROTON - PROTON Scheme name: 525ns_146b_144_35_22_8bpi_20inj_nocloseLR

Runs
 Total: 15 Over 2 minutes: 15 Under 2 minutes: 0
 Per quality: bad: 4 good: 11 Per detectors: CPV: 15 (91.72%) EMC: 15 (91.72%) FDD: 15 (91.72%) FT0: 15 (91.72%) ITS: 15 (91.72%) MCH: 15 (91.72%) MFT: 15 (91.72%) MID: 11 (69.55%)
 PHS: 15 (91.72%) TOF: 14 (90.05%) TRD: 15 (91.72%) FV0: 13 (90.61%) TPC: 12 (89.06%)

Run	Detectors	Tags	Fill No.	LHC Period	Start	Stop	Since prev.	Trg Va...	Duration	Environment ID	Quality	EPN	FLP	Data	DCS	EPN	Topology	Full
526077	11 CPV,EMC,FDD,FT0,ITS,...	PHYSICS	8178	LHC22n	24/09/2022 00:27:51	24/09/2022 00:31:47	-	CTP	00:03:56	2aaxPkrwZs	bad	18C	49	On	On	On	(hash, default, production/prod...	
526078	11 CPV,EMC,FDD,FT0,ITS,...	PHYSICS	8178	LHC22n	24/09/2022 00:49:06	24/09/2022 01:27:32	00:17:19	CTP	00:38:26	2aiwLmWzdkV	good	12C	49	On	On	On	(hash, default, production/prod...	
526080	13 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	24/09/2022 01:38:44	25/09/2022 01:36:33	00:11:12	CTP	23:57:49	2ajycRVdXCd	good	20C	19E	On	On	On	(hash, default, production/prod...	
526116	12 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 01:51:46	25/09/2022 02:10:46	00:15:13	CTP	00:19:00	2ak7s8jbtM	bad	19C	194	On	On	On	(hash, default, production/prod...	
526117	12 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 02:37:01	25/09/2022 02:55:05	00:28:15	CTP	00:18:04	2ak9whaD3rms	bad	19C	194	On	On	On	(hash, default, production/prod...	
526120	12 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 03:26:04	25/09/2022 03:29:06	00:30:59	CTP	00:03:02	2akCBFj2x89	bad	18C	194	On	On	On	(hash, default, production/prod...	
526121	12 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 03:38:45	25/09/2022 16:20:17	00:09:39	CTP	12:41:32	2akCknBuzVX	good	18C	194	On	On	On	(hash, default, production/prod...	
526175	12 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 16:26:40	25/09/2022 17:19:49	00:06:23	CTP	00:53:09	2akogQUdyQV	good	12C	50	On	On	On	(hash, default, production/prod...	
526181	13 CPV,EMC,FDD,FT0,FV0,...	PHYSICS	8178	LHC22n	25/09/2022 17:29:07	25/09/2022 17:46:00	00:09:18	CTP	00:16:53	2akracTYjbo	good	20C	19E	On	On	On	(hash, default, production/prod...	

Physicists use-case

- Have an history of data-taking conditions
 - Know which data is good enough to be used
 - See the configuration at any time
 - Know any event that occurred

Bookkeeping Home Log Entries Environments LHC Fills Runs Overview About + 👤

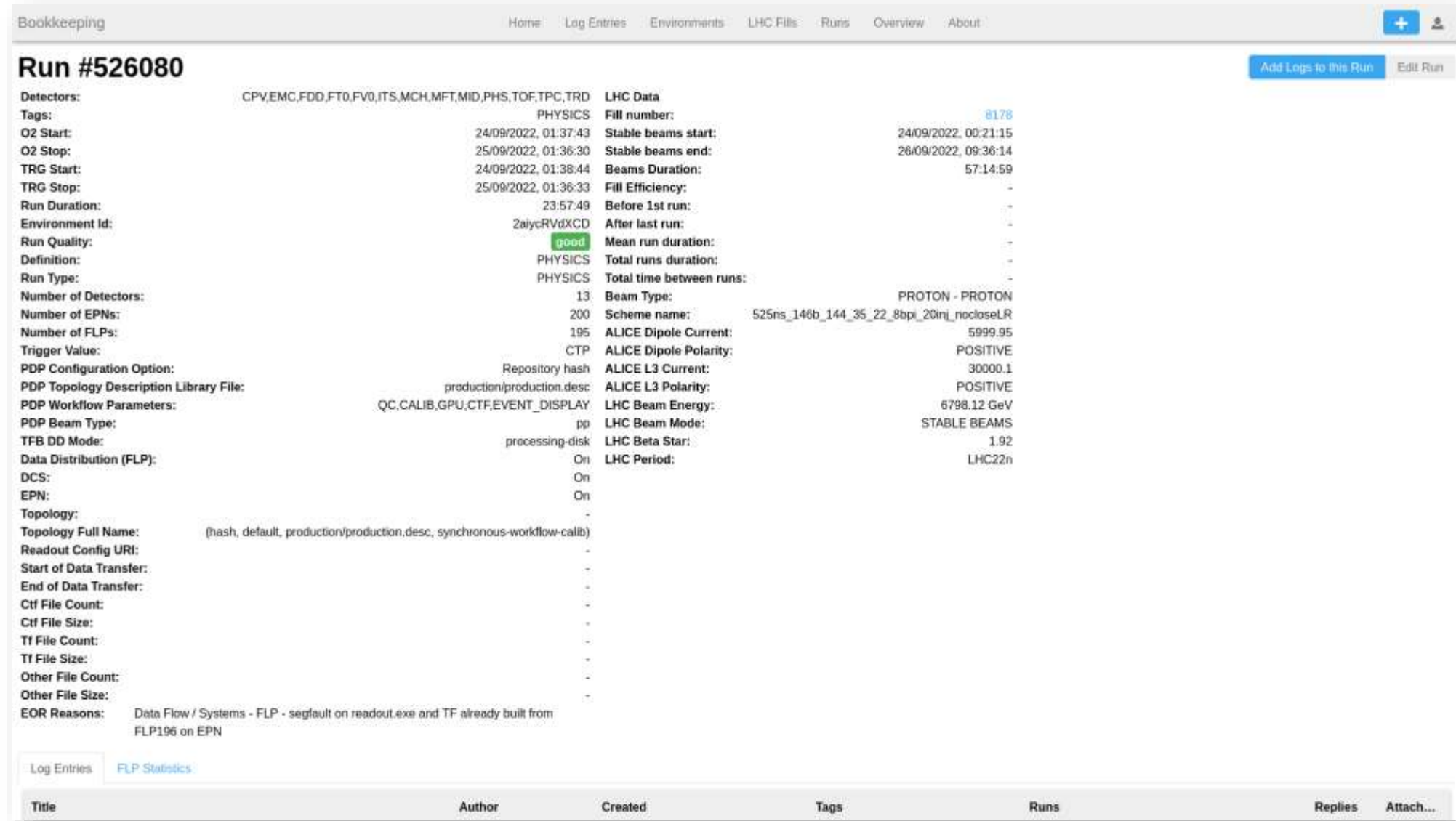
Open filters Export Runs

Run	Detectors	Tags	Fill No.	LHC Period	Start	Stop	Trg Val...	Definiti...	Duration	Environment ID	Quality	EPN	FLP:	Data	DCS	EPN	Topology	Full
527561	13 CPV,EMC,FDD,FT0,FV0,...	SYNTHETIC PP	8285	LHC220	18/10/2022 10:22:41*	18/10/2022 14:01:17*	OFF	SYNTH...	03:38:36*	2bCZ8WYuoq	test	2...	1...	On	Off	On	(hash, default, production/produ...	
527580	1 MCH	-	8285	LHC220	18/10/2022 09:10:37	18/10/2022 09:19:14	LTU	COMM...	00:08:37	2bCVsYAUfNs	test	10	11	On	On	On	(hash, default, production/produ...	
527559	1 MCH	-	8285	LHC220	18/10/2022 08:59:45*	18/10/2022 09:03:46*	CTP	COMM...	00:04:01*	2bCVXbzYVhb	test	10	11	On	On	On	(hash, default, production/produ...	
527556	14 CPV,EMC,FDD,FT0,FV0,...	SYNTHETIC PP	8285	LHC220	18/10/2022 08:56:57*	18/10/2022 10:14:45*	OFF	SYNTH...	01:17:48*	2bCVDdm8M8d	test	2...	1...	On	Off	On	(hash, default, production/produ...	
527557	1 MCH	-	8285	LHC220	18/10/2022 08:53:34*	18/10/2022 08:57:36*	CTP	COMM...	00:04:02*	2bCVFmInDb7	test	10	11	On	On	On	(hash, default, production/produ...	
527556	15 CPV,EMC,FDD,FT0,FV0,...	SYNTHETIC PP	8281	LHC220	17/10/2022 21:41:31*	18/10/2022 08:48:49*	OFF	SYNTH...	11:07:18*	2bBxRzMVjij	test	2...	1...	On	Off	On	(hash, default, production/produ...	
527555	14 CPV,EMC,FDD,FT0,FV0,...	SYNTHETIC PP	8280	LHC220	17/10/2022 20:12:14*	17/10/2022 21:29:52*	OFF	SYNTH...	01:17:38*	2bBNTbVSYo	test	2...	1...	On	Off	On	(hash, default, production/produ...	
527554	1 PHS	-	8279	LHC220	17/10/2022 19:53:13	17/10/2022 19:57:21	CTP	TECH...	00:04:08	2bBsmrW85WY	test	4	2	On	On	On	(hash, default, production/produ...	
527553	1 PHS	-	8279	LHC220	17/10/2022 19:49:06	17/10/2022 19:51:54	CTP	TECH...	00:02:48	2bBsmrW85WY	test	4	2	On	On	On	(hash, default, production/produ...	
527552	1 PHS	-	8279	LHC220	17/10/2022 19:36:27	17/10/2022 19:40:07	LTU	COMM...	00:03:40	2bBvY9KQ6M	test	1	2	On	On	On	(hash, default, production/standa...	
527551	1 PHS	-	8279	LHC220	17/10/2022 19:10:58	17/10/2022 19:33:39	LTU	COMM...	00:22:41	2bBqkzPdHJid	test	1	2	On	On	On	(hash, default, production/standa...	
527550	1 PHS	-	8279	LHC220	17/10/2022 18:59:32	17/10/2022 19:03:45	LTU	COMM...	00:04:13	2bBqEQ7ioP7	test	1	2	On	On	On	(hash, default, production/standa...	
527549	13 CPV,EMC,FDD,FT0,FV0,...	SYNTHETIC PP	8279	LHC220	17/10/2022 18:51:56*	17/10/2022 20:03:09*	OFF	SYNTH...	01:11:12*	2bBplueZlR3	test	2...	1...	On	Off	On	(hash, default, production/produ...	
527548	1 PHS	-	8279	LHC220	17/10/2022 18:50:36	17/10/2022 18:51:58	LTU	COMM...	00:01:22	2bBpo9QvMFo	test	1	2	On	On	On	(hash, default, production/standa...	

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Bookkeeping structure

- **Run**
 - Environment
 - Fill
 - Log
- Metadata for a given data-taking period
 - Run type
 - Actual collisions
 - Cosmic rays
 - Calibration
 - Quality of the data-taking
 - Overall
 - Per detector
 - Tag to ease data mining and automation



The screenshot displays the 'Bookkeeping' web interface for Run #526080. The interface is organized into several sections:

- Detectors:** CPV,EMC,FDD,FT0,FV0,ITS,MCH,MFT,MID,PHS,TOF,TPC,TRD
- Tags:** PHYSICS
- LHC Data:**
 - Fill number: 8178
 - Stable beams start: 24/09/2022, 00:21:15
 - Stable beams end: 28/09/2022, 09:36:14
 - Beams Duration: 57:14:59
 - Fill Efficiency: -
 - Before 1st run: -
 - After last run: -
 - Mean run duration: -
 - Total runs duration: -
 - Total time between runs: -
- Run Quality:** good
- Run Type:** PHYSICS
- Beam Type:** PROTON - PROTON
- Number of Detectors:** 13
- Number of EPNs:** 200
- Number of FLPs:** 195
- Trigger Value:** CTP
- PDP Configuration Option:** Repository hash
- PDP Topology Description Library File:** production/production.desc
- PDP Workflow Parameters:** QC,CALIB,GPU,CTF,EVENT_DISPLAY
- PDP Beam Type:** pp
- TFB DD Mode:** processing-disk
- Data Distribution (FLP):** On
- DCS:** On
- EPN:** On
- Topology:** -
- Topology Full Name:** (hash, default, production/production.desc, synchronous-workflow-calb)
- Readout Config URI:** -
- Start of Data Transfer:** -
- End of Data Transfer:** -
- CTF File Count:** -
- CTF File Size:** -
- TF File Count:** -
- TF File Size:** -
- Other File Count:** -
- Other File Size:** -
- EOR Reasons:** Data Flow / Systems - FLP - segfault on readout.exe and TF already built from FLP196 on EPN

At the bottom, there is a table with columns: Title, Author, Created, Tags, Runs, Replies, Attach...

Bookkeeping structure

- Run
 - **Environment**
 - Fill
 - Log
- Runs are linked to an environment
 - Configuration of the experiment
 - List of detectors
 - Process workflows and target devices
 - Enabled components

Bookkeeping

Home Log Entries Environments LHC Fills Runs Overview About

Id	Updated At	Created At	Status	Status Message	Runs
2bHRdoWP7v9	22/10/2022, 17:38:40	22/10/2022, 17:36:08	CONFIGURED	success: the environment is in CONFIGURED state after CONFIGURE transition	-
2bHREJv9QpZ	22/10/2022, 17:29:06	22/10/2022, 17:25:18	DESTROYED	the environment is DESTROYED after DESTROY transition	527844
2bHQ6RaAch	22/10/2022, 17:16:50	22/10/2022, 17:13:53	DESTROYED	the environment is DESTROYED after DESTROY transition	527843
2bHPu5xmcD	22/10/2022, 16:54:46	22/10/2022, 16:52:17	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527842
2bHP6McTy3	22/10/2022, 16:52:01	22/10/2022, 16:50:49	DESTROYED	the environment is DESTROYED after DESTROY transition	527841
2bHPaSqegbB	22/10/2022, 16:50:32	22/10/2022, 16:49:04	DESTROYED	the environment is DESTROYED after DESTROY transition	527840
2bHMJTBXBP	22/10/2022, 16:30:11	22/10/2022, 16:07:26	DESTROYED	the environment is DESTROYED after DESTROY transition	-
2bHLtaV285w	22/10/2022, 16:06:25	22/10/2022, 15:52:04	DESTROYED	the environment is DESTROYED after DESTROY transition	-
2bHKwBDkN1	22/10/2022, 15:49:11	22/10/2022, 15:29:10	DESTROYED	the environment is DESTROYED after DESTROY transition	527837
2bHLHJJCQZ	22/10/2022, 15:44:36	22/10/2022, 15:36:59	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527839
2bHLFT4zGZ	22/10/2022, 15:43:57	22/10/2022, 15:36:29	DESTROYED	the environment is DESTROYED after DESTROY transition	527838
2bHKrP6BU1w	22/10/2022, 15:35:23	22/10/2022, 15:27:44	DESTROYED	the environment is DESTROYED after DESTROY transition	527835
2bHKuQseK1K	22/10/2022, 15:34:44	22/10/2022, 15:28:29	DESTROYED	the environment is DESTROYED after DESTROY transition	527836
2bHTEpD2yX	22/10/2022, 14:44:54	22/10/2022, 14:35:08	DESTROYED	the environment is DESTROYED after DESTROY transition	527834
2bHGKQDzFb	22/10/2022, 14:34:40	22/10/2022, 14:14:21	DESTROYED	the environment is DESTROYED after DESTROY transition	527833
2bHGaSNekSy	22/10/2022, 14:29:54	22/10/2022, 14:15:54	DESTROYED	the environment is DESTROYED after DESTROY transition	527830
2bHGzr6Vdb	22/10/2022, 14:28:09	22/10/2022, 14:24:50	ERROR	success: the environment is in ERROR state after GO_ERROR transition	-
2bHGw4T3kyT	22/10/2022, 14:23:56	22/10/2022, 14:13:56	DESTROYED	the environment is DESTROYED after DESTROY transition	527832
2bGUAWdVhK	22/10/2022, 14:21:56	22/10/2022, 14:13:06	DESTROYED	the environment is DESTROYED after DESTROY transition	527831
2bHGSmFKF	22/10/2022, 14:14:50	22/10/2022, 14:13:03	DESTROYED	the environment is DESTROYED after DESTROY transition	-
2bH8v2mUrRw	22/10/2022, 14:12:02	22/10/2022, 11:27:29	DESTROYED	the environment is DESTROYED after DESTROY transition	527827
2bHDwF3efT7	22/10/2022, 14:11:09	22/10/2022, 13:19:34	DESTROYED	the environment is DESTROYED after DESTROY transition	527829
2bH9hUrRmB	22/10/2022, 13:15:27	22/10/2022, 11:47:05	DESTROYED	the environment is DESTROYED after DESTROY transition	527828
2bGsNyZyruw	22/10/2022, 11:34:04	22/10/2022, 05:48:40	DESTROYED	the environment is DESTROYED after DESTROY transition	527826
2bGjChgZow	22/10/2022, 05:45:43	22/10/2022, 02:49:15	DESTROYED	the environment is DESTROYED after DESTROY transition	527825
2bGlybwYWZV	22/10/2022, 02:46:01	22/10/2022, 01:38:24	DESTROYED	the environment is DESTROYED after DESTROY transition	527821
2bGijW5v73	22/10/2022, 02:45:47	22/10/2022, 02:37:12	DESTROYED	the environment is DESTROYED after DESTROY transition	527824

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Bookkeeping structure

- Run
 - Environment
 - **Fill**
 - Log
- Two colliding beams of particles in the accelerator
 - LHC Fill
 - Extract statistics

Bookkeeping

Home Log Entries Environments LHC Fills Runs Overview About

Fill #	Stable beams start	Stable beams end	Beams Duration	Beam Type	Fill Efficiency	Before 1st run	After last run	Mean run duration	Total runs duration	Scheme name	Runs
8304	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_2462b_2450_17...	-
8303	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_2462b_2450_17...	-
8302	22/10/2022, 00.3...	22/10/2022, 14.0...	13:32:10	PROTON - PROT...	85.67%	01:05:35 (8.08%)	-	02:19:09	11:35:48	25ns_2462b_2450_17...	527829, 527825, 5278...
8301	21/10/2022, 18:5...	21/10/2022, 22:1...	03:18:14	PROTON - PROT...	91.60%	00:16:39 (8.40%)	-	03:01:35	03:01:35	25ns_315b_302_237...	527799
8300	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_315b_302_237...	-
8299	21/10/2022, 13:1...	21/10/2022, 13:3...	00:22:34	PROTON - PROT...	53.77%	00:10:26 (46.23%)	-	00:12:08	00:12:08	25ns_315b_302_237...	527777
8298	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_315b_302_237...	-
8297	20/10/2022, 15:4...	21/10/2022, 01:2...	09:41:41	PROTON - PROT...	77.68%	00:26:39 (4.58%)	-	02:30:36	07:31:50	25ns_2365b_2352_16...	527751, 527736, 5277...
8296	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_2365b_2352_16...	-
8295	20/10/2022, 01:5...	20/10/2022, 12:4...	10:52:10	PROTON - PROT...	90.14%	00:24:36 (3.77%)	-	04:53:56	09:47:52	25ns_2462b_2450_17...	527694, 527690
8294	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_2462b_2450_17...	-
8293	19/10/2022, 17:0...	19/10/2022, 18:0...	01:01:28	PROTON - PROT...	85.57%	00:08:52 (14.43%)	-	00:52:36	00:52:36	25ns_315b_302_237...	527671
8292	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_315b_302_237...	-
8291	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_315b_302_237...	-
8290	-	-	-	PROTON - PROT...	-	-	-	-	-	25ns_315b_302_237...	-
8289	19/10/2022, 12:3...	19/10/2022, 12:4...	00:08:12	PROTON - PROT...	0.00%	-	-	-	00:00:00	25ns_315b_302_237...	-
8288	-	-	-	PROTON - PROT...	-	-	-	-	-	Single_42b_0_0_0_no...	-
8287	-	-	-	PROTON - PROT...	-	-	-	-	-	Single_42b_0_0_0_no...	-
8286	-	-	-	PROTON - PROT...	-	-	-	-	-	Single_42b_0_0_0_no...	-
8285	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8284	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8283	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8282	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8281	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8280	-	-	-	PROTON - PROT...	-	-	-	-	-	Multi_40b_0_0_0_4bpl...	-
8279	-	-	-	PROTON - PROT...	-	-	-	-	-	Single_42b_0_0_0_no...	-

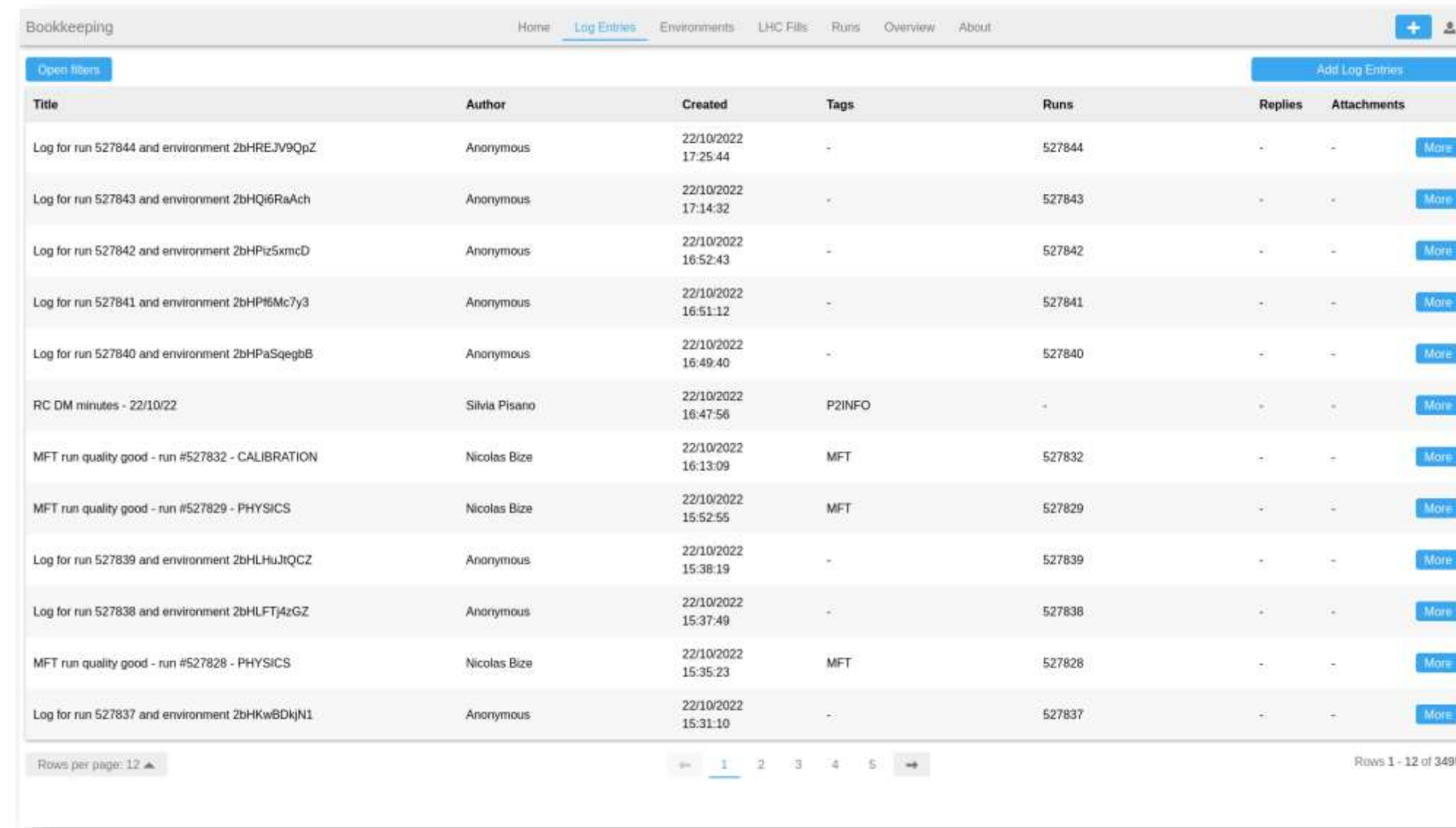
Rows per page: 20

1 2 3 4 5

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Bookkeeping structure

- Run
 - Environment
 - Fill
 - **Log**
- Free textual information with optional attachments
 - Can be created manually through bookkeeping or automatically when events occur
 - Tag to ease data mining and automation

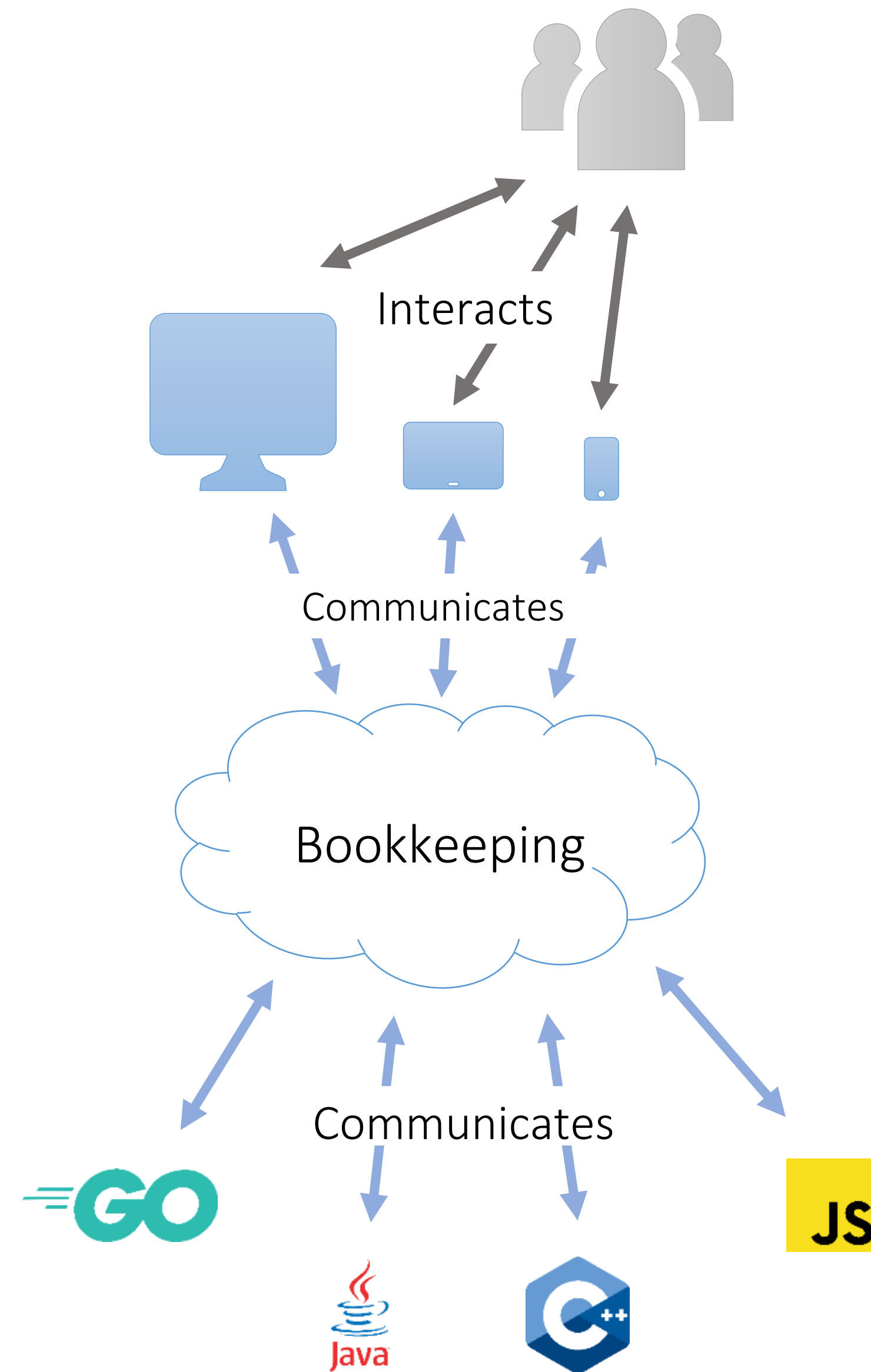


The screenshot shows the 'Bookkeeping' web interface with a table of log entries. The table has columns for Title, Author, Created, Tags, Runs, Replies, and Attachments. Each row includes a 'More' button for additional details.

Title	Author	Created	Tags	Runs	Replies	Attachments
Log for run 527844 and environment 2bHREJv9QpZ	Anonymous	22/10/2022 17:25:44	-	527844	-	-
Log for run 527843 and environment 2bHQi6RaAch	Anonymous	22/10/2022 17:14:32	-	527843	-	-
Log for run 527842 and environment 2bHPiz5mcD	Anonymous	22/10/2022 16:52:43	-	527842	-	-
Log for run 527841 and environment 2bHPi6Mc7y3	Anonymous	22/10/2022 16:51:12	-	527841	-	-
Log for run 527840 and environment 2bHPaSqegbB	Anonymous	22/10/2022 16:49:40	-	527840	-	-
RC DM minutes - 22/10/22	Silvia Pisano	22/10/2022 16:47:56	P2INFO	-	-	-
MFT run quality good - run #527832 - CALIBRATION	Nicolas Bize	22/10/2022 16:13:09	MFT	527832	-	-
MFT run quality good - run #527829 - PHYSICS	Nicolas Bize	22/10/2022 15:52:55	MFT	527829	-	-
Log for run 527839 and environment 2bHLHuJtQCZ	Anonymous	22/10/2022 15:38:19	-	527839	-	-
Log for run 527838 and environment 2bHLFTJzGZ	Anonymous	22/10/2022 15:37:49	-	527838	-	-
MFT run quality good - run #527828 - PHYSICS	Nicolas Bize	22/10/2022 15:35:23	MFT	527828	-	-
Log for run 527837 and environment 2bHKwBDkjN1	Anonymous	22/10/2022 15:31:10	-	527837	-	-

Technical stack – Usage

- Two clients
 - Users
 - Manual interaction, through GUI
 - Interfaces to other applications implemented in various technologies and languages
 - Go (Control System)
 - C++ (readout and data quality monitoring)
 - Web application (Run condition table)
 - Java (interface to the LHC information service)

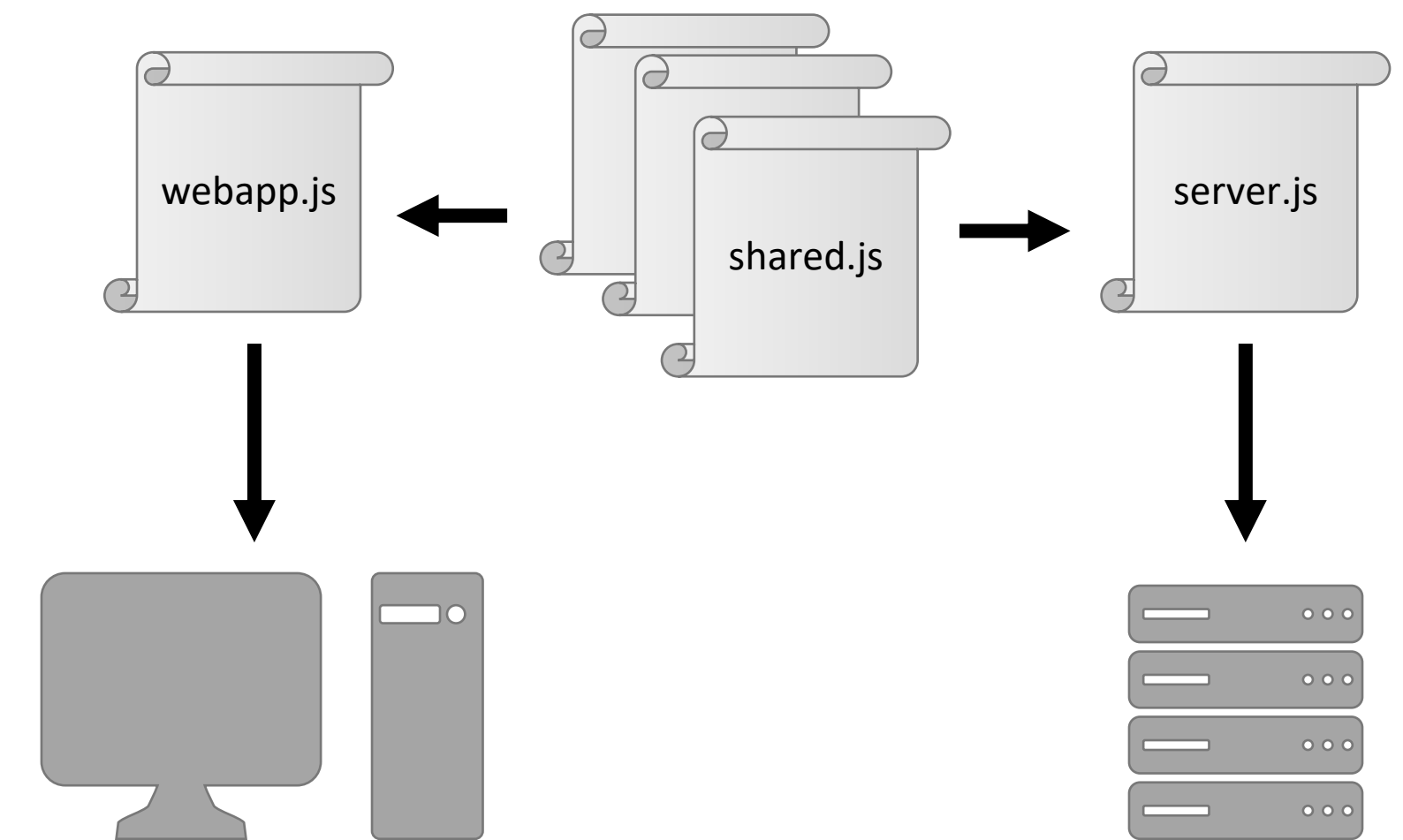


Technical stack – Main stack : User GUI

- NodeJs backend
 - Non-blocking: handle huge number of requests without hanging
- Javascript
 - Reference in web development
 - Low learning curve yet powerful
 - Useful if team grows
- Customized mithril frontend
 - Lightweight
 - Component oriented
- One technology for back and main front
 - Shared code
 - Developers efficient on both sides

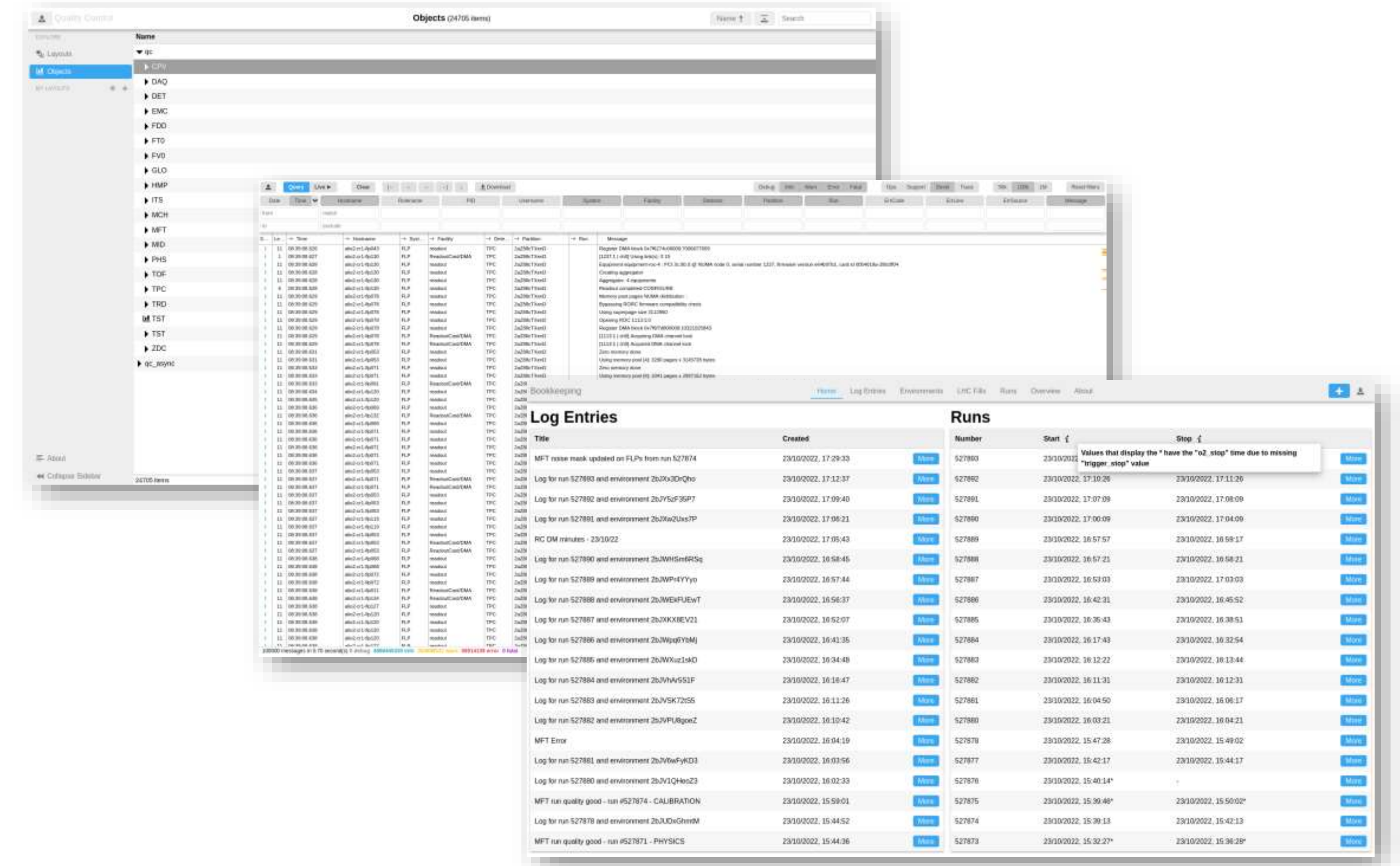


Stack overflow survey 2021



Technical stack – User GUI

- Use of a common framework across all GUIs
 - Used by 4 other tools
 - Factorizes development
 - Mutualizes common code patterns
 - Similar look and feel
 - Easy switch between applications



The screenshot displays the ALICE operational logbook interface. On the left, a tree view shows the hierarchy of objects, including DAQ, EMC, FDD, FVJ, GLO, HMP, ITS, MCH, MFT, MD, PHS, TOF, TPC, TRD, M-TST, TST, ZDC, and QC_Sync. The main area is divided into two panels: 'Log Entries' and 'Runs'.

Log Entries Table:

Created	Title
23/10/2022, 17:29:33	MFT raise mask updated on FLPs from run 527874
23/10/2022, 17:12:37	Log for run 527893 and environment 2b3v4DQho
23/10/2022, 17:09:40	Log for run 527892 and environment 2b3v5F3SP7
23/10/2022, 17:06:21	Log for run 527891 and environment 2b3v6Qus7P
23/10/2022, 17:05:43	MC OM minutes - 23/10/22
23/10/2022, 16:58:45	Log for run 527890 and environment 2b3vW5eR5e
23/10/2022, 16:57:44	Log for run 527889 and environment 2b3vP4FYyo
23/10/2022, 16:56:37	Log for run 527888 and environment 2b3vW4FUEwT
23/10/2022, 16:52:07	Log for run 527887 and environment 2b3vX8MEV21
23/10/2022, 16:42:35	Log for run 527886 and environment 2b3vWjapY9M
23/10/2022, 16:34:48	Log for run 527885 and environment 2b3vW0uz14d
23/10/2022, 16:18:47	Log for run 527884 and environment 2b3vW4V551F
23/10/2022, 16:11:26	Log for run 527883 and environment 2b3v5K7255
23/10/2022, 16:10:42	Log for run 527882 and environment 2b3vP4Rgez2
23/10/2022, 16:04:19	MFT Error
23/10/2022, 16:03:56	Log for run 527881 and environment 2b3v1Qe4dD3
23/10/2022, 16:02:33	Log for run 527880 and environment 2b3v1Q4no23
23/10/2022, 15:59:01	MFT run quality good - run #527874 - CALIBRATION
23/10/2022, 15:44:52	Log for run 527878 and environment 2b3vK0GrenM
23/10/2022, 15:44:36	MFT run quality good - run #527871 - PHYSICS

Runs Table:

Number	Start	Stop
527893	23/10/2022, 17:10:26	23/10/2022, 17:11:26
527892	23/10/2022, 17:07:09	23/10/2022, 17:08:09
527890	23/10/2022, 16:57:21	23/10/2022, 16:58:21
527889	23/10/2022, 16:53:03	23/10/2022, 16:54:03
527888	23/10/2022, 16:42:31	23/10/2022, 16:43:31
527885	23/10/2022, 16:35:43	23/10/2022, 16:36:43
527884	23/10/2022, 16:17:43	23/10/2022, 16:18:43
527883	23/10/2022, 16:13:22	23/10/2022, 16:14:22
527882	23/10/2022, 16:11:31	23/10/2022, 16:12:31
527881	23/10/2022, 16:04:50	23/10/2022, 16:05:50
527880	23/10/2022, 16:04:21	23/10/2022, 16:05:21
527878	23/10/2022, 15:47:28	23/10/2022, 15:48:28
527877	23/10/2022, 15:42:17	23/10/2022, 15:43:17
527876	23/10/2022, 15:40:14	23/10/2022, 15:41:14
527875	23/10/2022, 15:39:40	23/10/2022, 15:40:40
527874	23/10/2022, 15:39:13	23/10/2022, 15:40:13
527873	23/10/2022, 15:32:27	23/10/2022, 15:33:27

Technical stack – APIs

- REST API
 - HTTP client
 - Available in many languages
 - Scripting using cURL
 - First client: Bookkeeping SPA
- gRPC API
 - Widely used at CERN
 - Fast and secured
 - Interface-based (robustness)

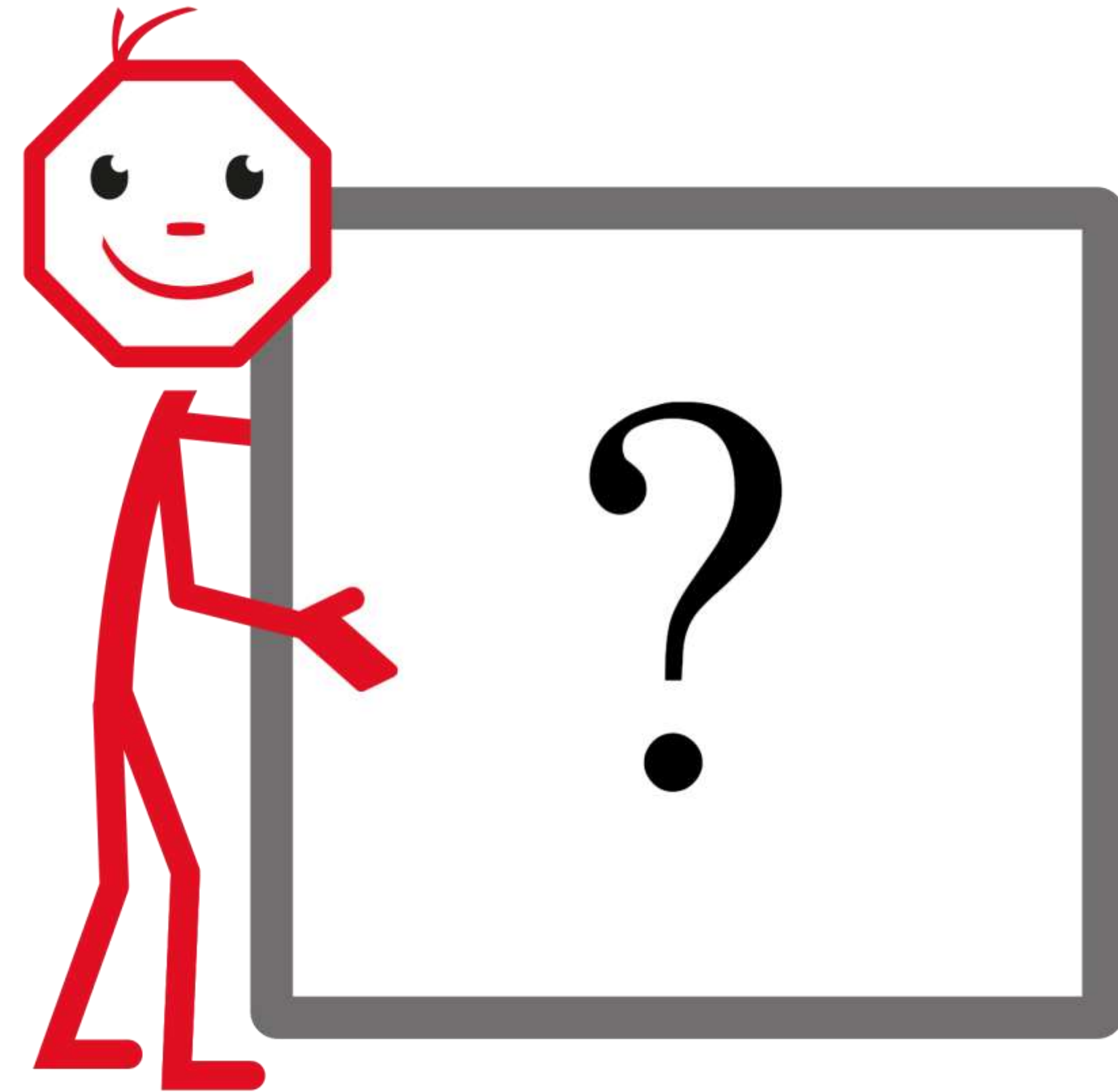
```
1  syntax = 'proto3';
2
3  package o2.bookkeeping;
4
5  import 'common.proto';
6
7  // Services
8
9  service RunService {
10  rpc Create(RunCreationRequest) returns (Run);
11  rpc Update(RunUpdateRequest) returns (Run);
12  }
13
14  // High level messages
15
16  message RunCreationRequest {
17  string environmentId = 1;
18  int32 nDetectors = 2;
19  int32 nEpn = 3;
20  int32 nFlps = 4;
21  int32 runNumber = 5;
22  RunType runType = 6;
23  bool dd_flp = 7;
24  bool dcs = 8;
25  bool epn = 9;
26  string epnTopology = 10;
27  string odcTopologyFullName = 11;
28  repeated Detector detectors = 12;
29  }
```

Future works

- Improve automation
- Add user customization
- Improve statistics

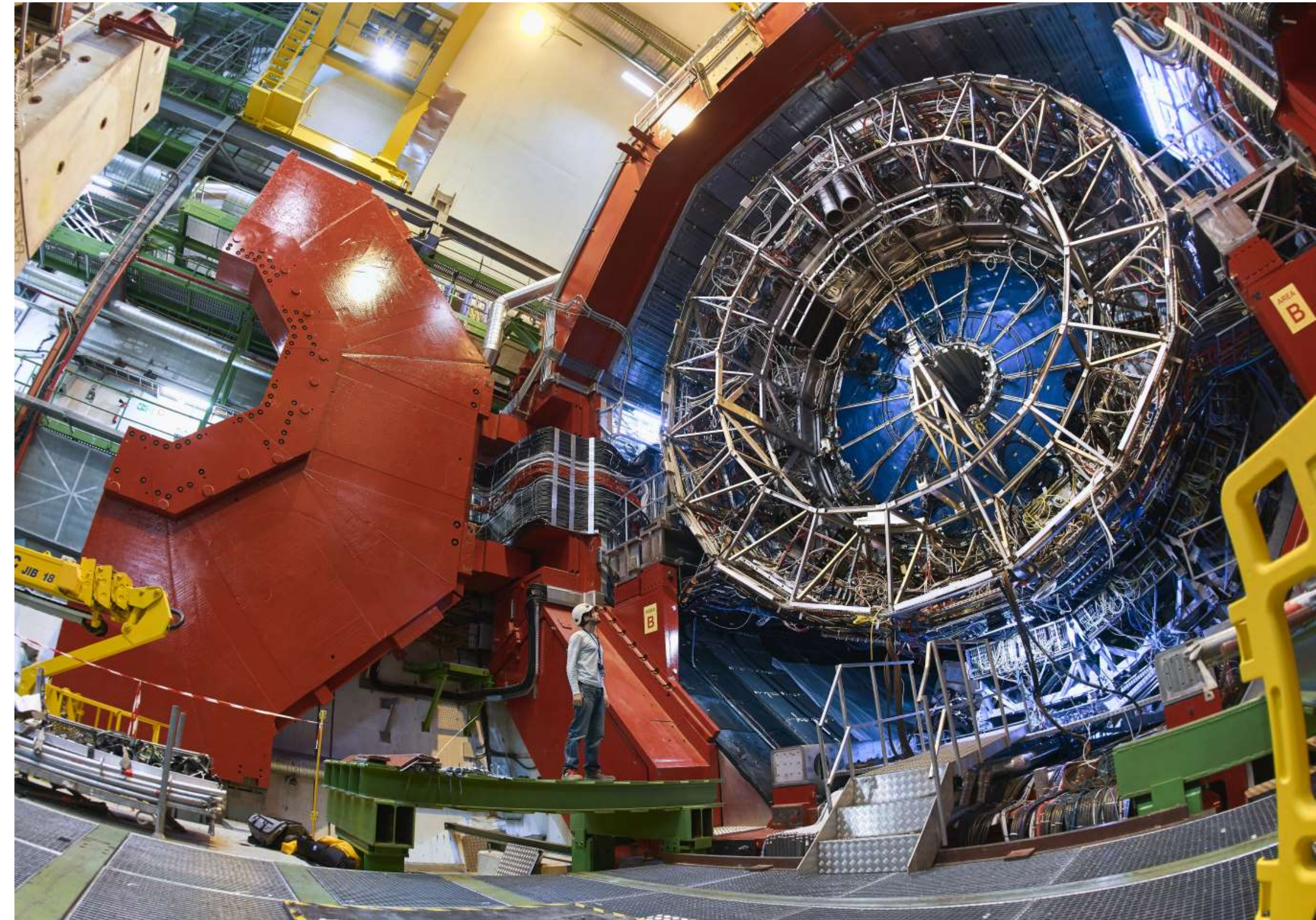
Thank you

Any question?

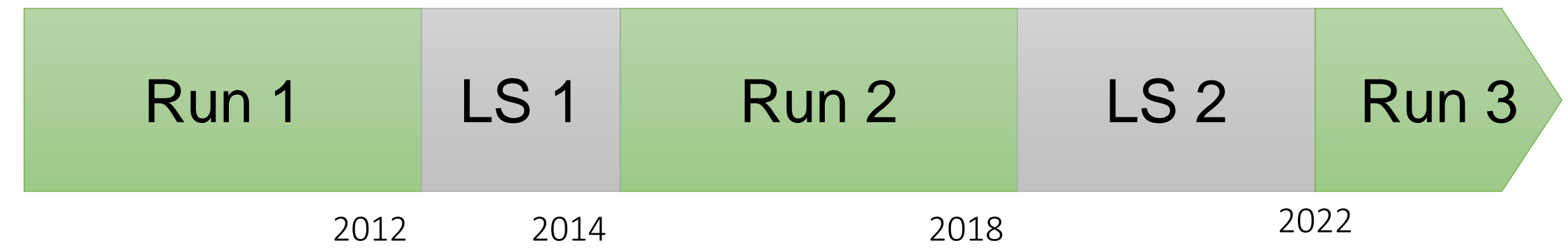


ALICE presentation

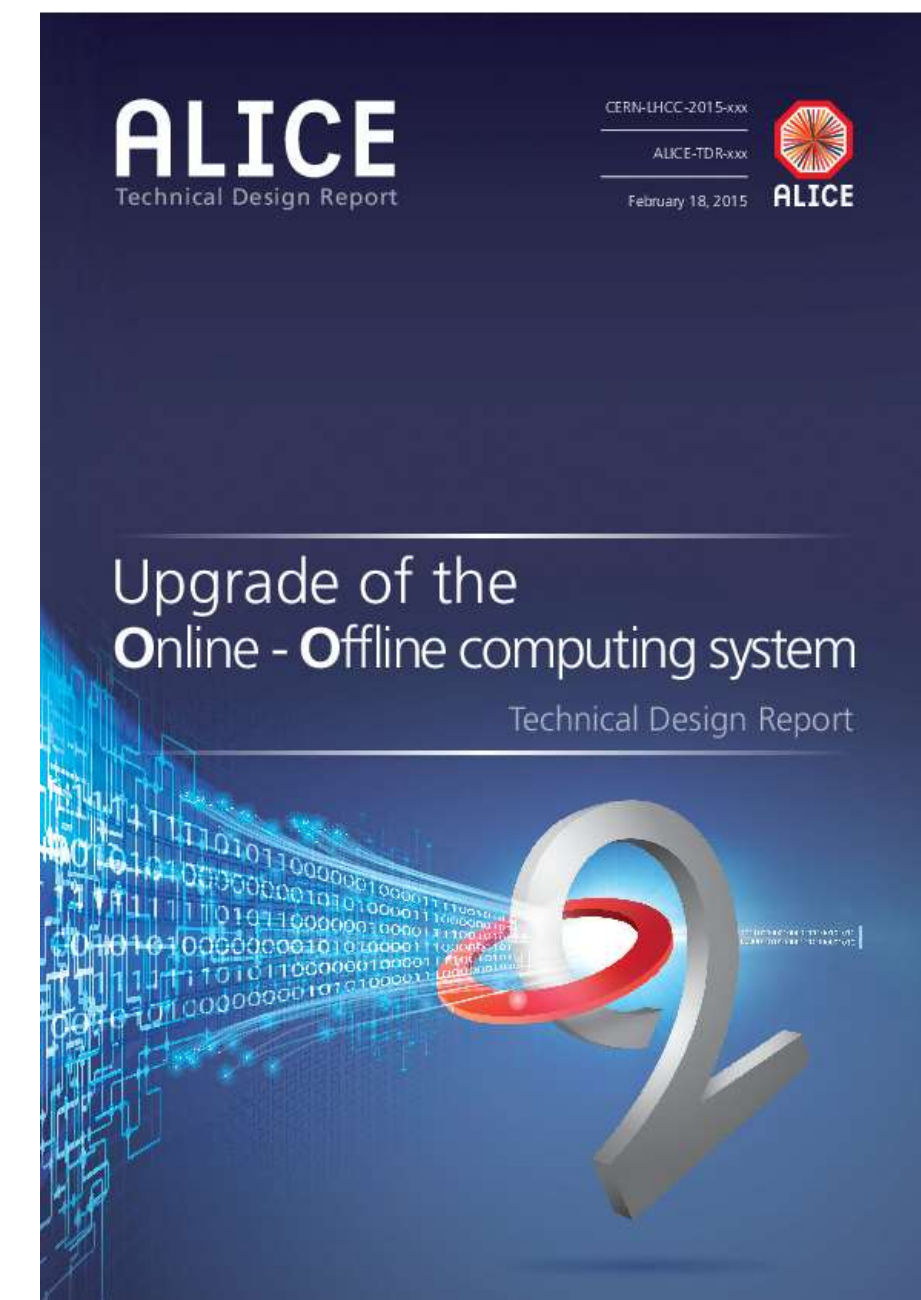
- 1 of the 4 main experiments at LHC
- 173 institutes over 40 countries
- Main goal: Collision of heavy ions at high energy
 - Objective: study quark gluon plasma
- Huge installation:
 - 52 meters underground
 - 16m wide and high, 26m depth
 - Weight as much as Eifel tower



ALICE upgrade

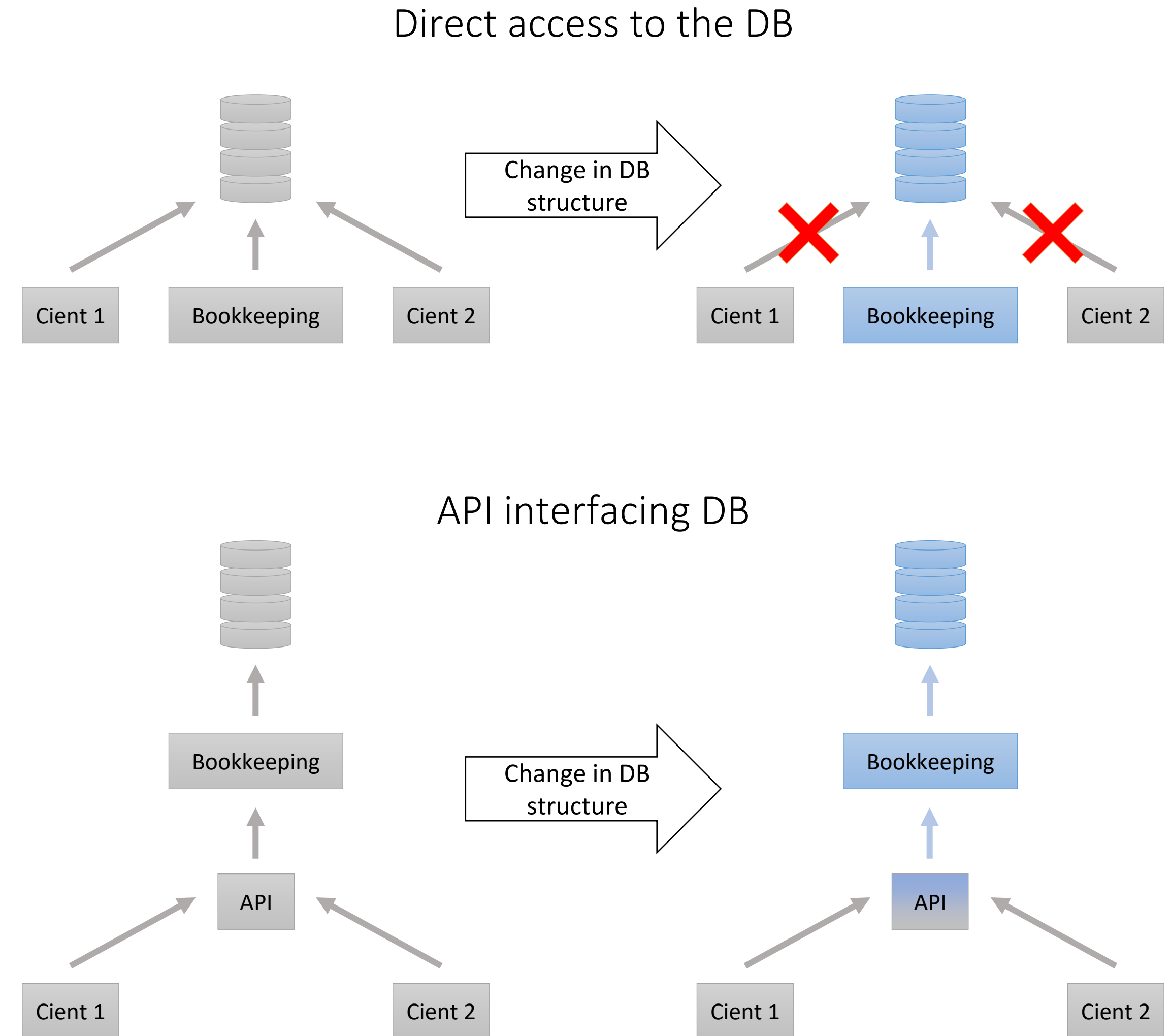


- Long shutdown 2
 - 2018 -2022
- Change multiple detectors
- After upgrade: data rate up to 3.5 TB/s
- New computing system: Online-Offline
 - Online reconstruction of events → reduce from 3.5TB/s to 90GB/s
 - Raw data is discarded, no room for errors
 - Offline processing of events
- Complete rewrite of all the components, including the logbook



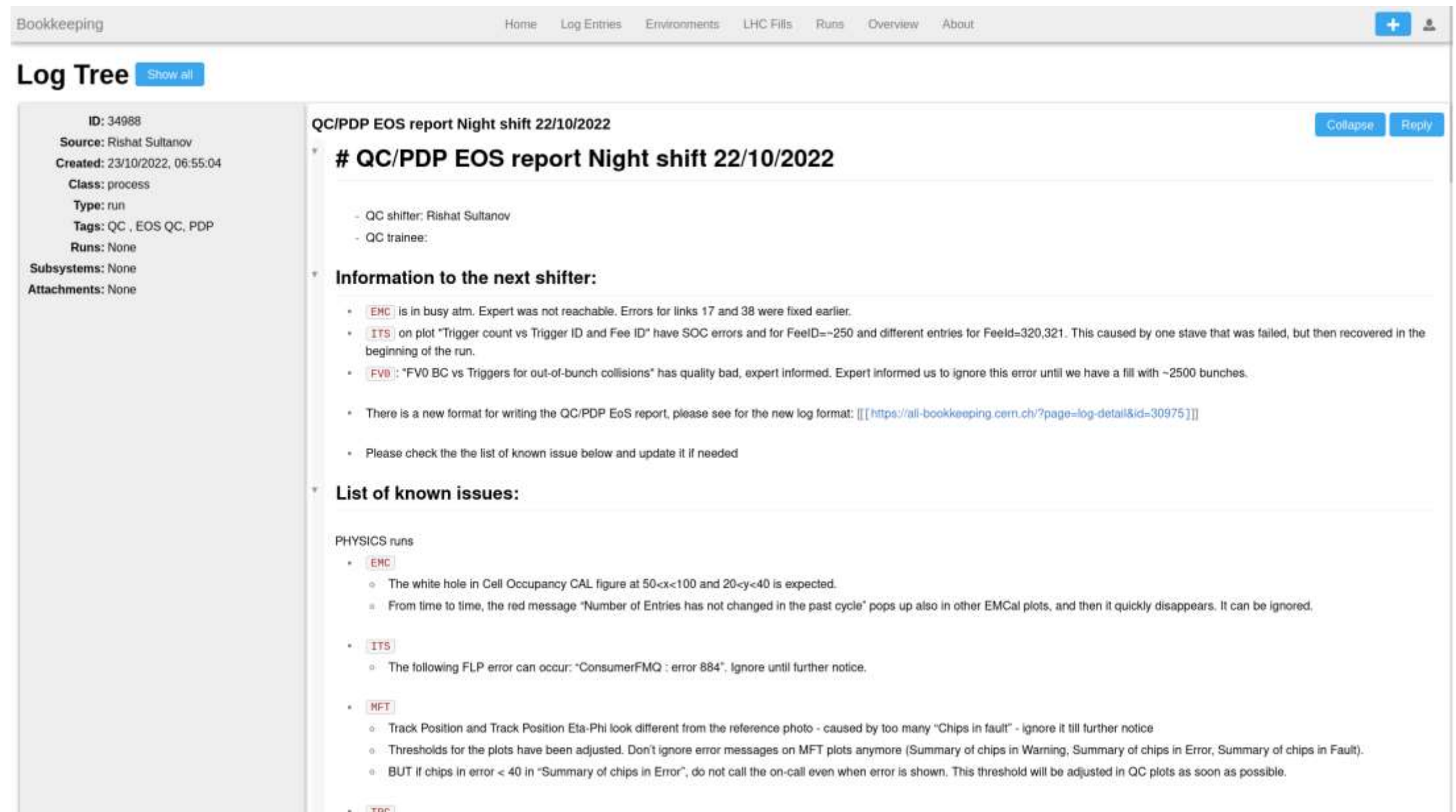
Technical stack – APIs

- Applications need to
 - Provide data
 - Read data
- Naive solution: open access to database
- Problem
 - Clients depend on database structure
 - Limits evolution possibilities of the application
- API
 - Encapsulates database schema
 - Improves security



Shifters use-case

- End of shift report
 - Quick overview of the situation when starting a shift: previous runs, eventual issues
 - Written by shifters at the end of their shift
- Fill the end of run reason



The screenshot shows the 'Bookkeeping' web interface. The main content is a log entry titled 'QC/PDP EOS report Night shift 22/10/2022'. The entry includes a 'Log Tree' sidebar with details like ID: 34988, Source: Rishat Sultanov, and Tags: QC, EOS QC, PDP. The main text of the log entry is as follows:

QC/PDP EOS report Night shift 22/10/2022

- QC shifter: Rishat Sultanov
- QC trainee:

Information to the next shifter:

- **EHC**: is in busy atm. Expert was not reachable. Errors for links 17 and 38 were fixed earlier.
- **ITS**: on plot "Trigger count vs Trigger ID and Fee ID" have SOC errors and for Feeld=-250 and different entries for Feeld=320,321. This caused by one stove that was failed, but then recovered in the beginning of the run.
- **FV0**: "FV0 BC vs Triggers for out-of-bunch collisions" has quality bad, expert informed. Expert informed us to ignore this error until we have a fill with ~2500 bunches.
- There is a new format for writing the QC/PDP EoS report, please see for the new log format: [\[\[https://ali-bookkeeping.cern.ch/?page=log-detail&id=30975\]\]](https://ali-bookkeeping.cern.ch/?page=log-detail&id=30975)
- Please check the the list of known issue below and update it if needed

List of known issues:

PHYSICS runs

- **EHC**
 - The white hole in Cell Occupancy CAL figure at 50-cx<100 and 20-cy<40 is expected.
 - From time to time, the red message "Number of Entries has not changed in the past cycle" pops up also in other EMCAL plots, and then it quickly disappears. It can be ignored.
- **ITS**
 - The following FLP error can occur: "ConsumerFMQ : error 884". Ignore until further notice.
- **MFT**
 - Track Position and Track Position Eta-Phi look different from the reference photo - caused by too many "Chips in fault" - ignore it till further notice
 - Thresholds for the plots have been adjusted. Don't ignore error messages on MFT plots anymore (Summary of chips in Warning, Summary of chips in Error, Summary of chips in Fault).
 - BUT if chips in error < 40 in "Summary of chips in Error", do not call the on-call even when error is shown. This threshold will be adjusted in QC plots as soon as possible.
- **TPC**

On-call (experts) use-case

- Get environment list
- Used to identify what has gone wrong

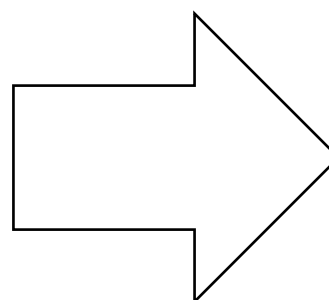
Bookkeeping

Home Log Entries Environments LHC Fills Runs Overview About

Id	Updated At	Created At	Status	Status Message	Runs
2bF3cSfQFeq	20/10/2022, 15:09:30	20/10/2022, 15:06:44	DESTROYED	the environment is DESTROYED after DESTROY transition	527718
2bF3QFzxaaj	20/10/2022, 15:06:20	20/10/2022, 15:02:08	DESTROYED	the environment is DESTROYED after DESTROY transition	527717
2bF2wyMbAqj	20/10/2022, 15:02:15	20/10/2022, 14:52:11	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527716
2bF2aL2KHzy	20/10/2022, 14:51:07	20/10/2022, 14:44:00	DESTROYED	the environment is DESTROYED after DESTROY transition	527715
2bF2borhJj	20/10/2022, 14:48:14	20/10/2022, 14:44:35	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527714
2bF2MA2XQ4R	20/10/2022, 14:43:39	20/10/2022, 14:39:03	DESTROYED	the environment is DESTROYED after DESTROY transition	527713
2bF1eZ8cBf9	20/10/2022, 14:26:38	20/10/2022, 14:23:41	DESTROYED	the environment is DESTROYED after DESTROY transition	527712
2bF1SutDJcQ	20/10/2022, 14:23:26	20/10/2022, 14:19:17	DESTROYED	the environment is DESTROYED after DESTROY transition	527711
2bF1Jsd7Akq	20/10/2022, 14:19:45	20/10/2022, 14:16:13	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527710
2bF17qj59zR	20/10/2022, 14:14:07	20/10/2022, 14:12:03	DESTROYED	the environment is DESTROYED after DESTROY transition	527709
2bEteylFsWh	20/10/2022, 14:10:59	20/10/2022, 11:50:17	DESTROYED	the environment is DESTROYED after DESTROY transition	527697
2bEznYt9zy	20/10/2022, 14:09:37	20/10/2022, 14:04:45	ERROR	success: the environment is in ERROR state after GO_ERROR transition	527708
2bEyrQxkEnM	20/10/2022, 13:59:01	20/10/2022, 13:44:17	DESTROYED	the environment is DESTROYED after DESTROY transition	527707
2bEYQE7v1nh	20/10/2022, 13:39:50	20/10/2022, 13:34:23	DESTROYED	the environment is DESTROYED after DESTROY transition	527706
2bEYc7GNvVyy	20/10/2022, 13:34:09	20/10/2022, 13:29:48	DESTROYED	the environment is DESTROYED after DESTROY transition	527705
2bEY7UEapuf	20/10/2022, 13:29:25	20/10/2022, 13:28:03	ERROR	success: the environment is in ERROR state after GO_ERROR transition	-
2bExNqMEmfj	20/10/2022, 13:27:49	20/10/2022, 13:11:55	DESTROYED	the environment is DESTROYED after DESTROY transition	527704
2bEwaXLxrv	20/10/2022, 13:25:47	20/10/2022, 12:54:36	ERROR	success: the environment is in ERROR state after GO_ERROR transition	-

Rows per page: 18

Rows 217 - 234 of 1587



Query Live

Clear | Download

Debug Info Warn Error Fatal | Ops Support Devel Trace | 500 1000 1M | Reset Filters

Date	Time	Hostname	RoleName	PID	Username	System	Facility	Detector	Partition	Run	EnCode	EnLine	EnSource	Message
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11095 new = 10934						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 10934 new = 11012						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11012 new = 11090						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11090 new = 11168						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11168 new = 11247						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11247 new = 11325						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11325 new = 11403						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11403 new = 11481						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11481 new = 11559						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11559 new = 11637						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11637 new = 11715						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11715 new = 11793						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11793 new = 11872						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Message flood detected - further messages will be stored locally in /tmp/ali_logger/Prod/689955/ali02-c1-0p146-166267722						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in Channel:GnHG found: Gain error L:GnHG in channel col 7 row 7 (SM 14, row 6 col 7)						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in Channel:GnHG found: Gain error L:GnHG in channel col 6 row 6 (SM 14, row 6 col 6)						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in Channel:GnHG found: Gain error L:GnHG in channel col 7 row 7 (SM 14, row 6 col 7)						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in Channel:GnHG found: Gain error L:GnHG in channel col 13 row 13 (SM 14, row 6 col 7)						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in Channel:GnHG found: Gain error L:GnHG in channel col 69 row 69 (SM 15, row 9 col 5)						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in GainTypeError found: Raw error High Gain missing found in DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in GainTypeError found: Raw error Low Gain missing found in DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in GainTypeError found: Raw error High Gain missing found in DDL 31						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in NoHGPeDDL found: Gain error L:GnHG in FEC 2 of DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in NoHGPeDDL found: Gain error L:GnHG in FEC 4 of DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in NoHGPeDDL found: Gain error L:GnHG in FEC 15 of DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in NoHGPeDDL found: Gain error L:GnHG in FEC 21 of DDL 31						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Raw Error in NoHGPeDDL found: Gain error H:GnHG in FEC 2 of DDL 28						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11637 new = 11715						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11715 new = 11793						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	Gap in timeframe its detected: previous = 11793 new = 11872						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	task terminated with error: command="mpd02/ServiceSender" error="signal: segmentation fault [core dumped]" id="2bEznYt9zy" task="ali02-c1-fv-pool.com.ch.lhcb.grid/ControlWorkflows/task/sender@62a44321025a3e...						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	cannot acquire run number for GRP object						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	DD scheduler partition still active, performing PartitionTerminate endpoint="epn005-b.internal.50007" partition_state="PARTITION_CONFIGURED"						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	error reading event from task &TaskID[Value:2bEznYt9zy] error="pc: error: code = Cancelled desc = grpc: the client connection is closing" errorType="Status.Error"						
14.10.2022	11:50:17	ali02-c1-0p146	FLP	readout	EMC	2bEznYt9zy	527708	error reading event from task &TaskID[Value:2bEznYt9zy] error="pc: error: code = Unavailable desc = error reading from server: EOF" id="2bEznYt9zy" task="ali02-c1-fv-pool.com.ch.lhcb.grid/ControlWorkflows/task/sender@62a44321025a3e...						

475 messages in 0.03 seconds | 0 debug | 0 info | 1304 warn | 1930 error | 0 fatal

SELECT * FROM messages WHERE partition = 7 AND severity IN (7) AND level = 7 ORDER BY ...

Autoscroll Inspector