

Architects Forum Meeting

Date / Time: 04 Apr 2024, 14:00

Agenda: <https://indico.cern.ch/event/1354955>

Present: Graeme Stewart, Predrag Buncic, Marco Clemencic, Valentin Volkl, G Ganis, A Sailer, A Ribon

Remote: N Styles, G. Amadio, D. Piparo, G. Cosmo, Liz Sexton-Kennedy, A. Valassi, S. Campana

Excused: Eduardo Rodrigues, Giulio Eulisse, Lorenzo Moneta, James Letts

Next meeting: 02 May 2024, 14:00

Announcements and upcoming events

Draft minutes of the last meeting can be found [here](#).
The minutes of the previous meetings can be found [here](#).

13-17 May 2024

Joint [WLCG-HSF Workshop](#) in Hamburg

7-11 October 2024	29th Geant4 Collaboration meeting in Catania (Italy)
19-25 October 2024	CHEP 2024

SFT Line Management

Arrivals

1. Oleksandr Shchur, EP R&D trainee, 3 months from March 15th (remote, Ukrainian program)
2. Adrian Duesselberg, ROOT trainee, 6 months from April 2nd

Openings

- We have openings for 4 QUEST
 - 2x ROOT
 - Data Analysis Tools Developer on ROOT ([EP-SFT-2024-35-GRAP](#)), deadline April 10th, 2024
 - Parallel-GPU Software Developer on ROOT/EP R&D ([EP-SFT-2024-37-GRAP](#)), deadline April 14th, 2024
 - 2x NGT WP 1
 - ML Software Developer for FPGA (T1.2) ([EP-SFT-2024-47-GRAP](#)), deadline April 30th, 2024
 - Software Developer for ML Training (T1.3) ([EP-SFT-2024-48-GRAP](#)), deadline April 30th, 2024
- We are preparing 2 new LD openings (VNs approved, being finalised for publication; expect by mid April)
 - 1x ROOT
 - Scientific Software Engineer - Data Analysis, 3 years
 - A. Naumann's replacement

- 1x NGT WP 1
 - Lead Software Engineer - Machine Learning, 5 years
 - Coordination of tasks 1.2 and 1.3

Summer Students

- Selections finished, got almost all the requests (17 MS/NMS, 4 OpenLab)

AoB

- New e-mail list ep-sft-info@cern.ch
 - For announcements like the DBoD upgrade announcement, as well as other issues mentioned under AOB
 - In response to action item of last meeting

Report from the SFT Projects

ROOT

- The [1st ROOT Quarterly Report meeting](#) took place yesterday, with Experiments representatives and funders (what were once called “Godfathers”). ROOT’s plan for 2024 (and the start of 2025) was presented, as well as how it will continue to unfold in the next months, incorporating 5 additional FTEs and other summer students. The status of the completion of the [PoW](#) was presented, together with other performance metrics. Feedback from participants duly noted. In summary:
 - **The PoW is 16% complete** (considering Extra Items proposed by experiments after its first presentation in January)
 - **Number of open issues: -13% wrt Jan 1st** (1539 --> 1340, 394 closed in total)
 - **9h were necessary to obtain a first answer on the [ROOT Forum](#)**
 - **695/528 PRs opened/closed (median time to close 1 day)**
- There will be 2 ROOT major releases during 2024: 6.32.00 in May and 6.33.00 in November. The release for data taking will be 6.32.00, while 6.33.00 will be a development release. Timeline for 6.32:
 - Branching: today
 - Release candidate: end of April
 - Release: end of May
- The latest Cppyy was integrated in the master branch and exposed to CMS and LHCb, also through the “dev3” LCG Stack. It’s important to start testing as much as possible as early as possible, given that the feature will be in ROOT 6.32.00.

Effort:

- An excellent candidate to fill the [ROOT-SFT-2024-16-GRAP](#) position (RNTuple+RDataFrame) was identified. The contract start date is May 1st.

	• The positions Data Analysis Tools Developer on ROOT (EP-SFT-2024-35-GRAP) and Parallel-GPU Software Developer on ROOT (EP-SFT-2024-37-GRAP) will close on April 15th. Candidates selections will follow shortly after. Releases: • ROOT 6.30.06 was released yesterday (also containing a forward compatibility fix enabling 6.26 to read files written by 6.30 requested by LHCb) • The branch v6-32-00-patches was created today, to prepare for the forthcoming release. The CI for this release is only GitHub based, i.e. not steered through Jenkins.
Simulation	• The new monthly development release of Geant4 (11.2.ref03), including the developments made in March, was deployed last week and is installed on CVMFS at CERN. • Next Geant4 Technical Forum scheduled on April 11th : https://indico.cern.ch/event/1394848/ The main topic is the presentation to the users of the complete plan of work of Geant4 for 2024.

ML&AI	• Presentation next week at the IWOCL conference (poster on accelerating SOFIE with SYCL) • The 2 QUEST job openings (for NGT) have been extended until end of April: ◦ ML Software Developer for FPGA (EP-SFT-2024-47-GRAP) ◦ Software Developer for ML Training (EP-SFT-2024-48-GRAP) • Fastsim workplan for Peter McKeown discussed with the ATLAS fast-simulation group ◦ Improve inference pipeline and testing other ML models (VAE, diffusion) than GAN, which is currently used
CernVM	• Ongoing migration campaign of CVMFS publishers to Alma9 by CERN IT ◦ No major issues for clients, but process could be smoother - working with IT to improve • Ongoing developments for next release (2.12) ◦ Parallel decompression after download • First test of Fuse-t for macOS successful ◦ Significantly easier installation, no longer requires kernel extension ◦ GSoC project to do benchmarking and put it into production
Stacks	• Provided LCG_104d_ATLAS_11/12 • Preparing for migration to CVMFS gateway publishers

Related Projects & IT

RCS-ICT TC/SC	• webEOS migration status as of 28 Mar 2024: Total: 82, AFS (CC7): 20, EOS (CC7): 36, Migrated: 21, Deleted: 5 https://webeos.docs.cern.ch/migration_el9/migration-status/status-2024-03-28/#epsft • Monthly security report: https://security.web.cern.ch/reports/en/monthly_reports/2024/2024-03.shtml Please check that SFT e-groups which give access to resources do not allow self-subscription. Fedora users should ensure to use xz < 5.6.0. • https://www.redhat.com/en/blog/urgent-security-alert-fedora-41-and-rawhide-users • Next ITUM Meeting at 1st July: https://indico.cern.ch/event/1397307/ • Ubuntu 24.04 LTS will be released this month: https://discourse.ubuntu.com/t/noble-numbat-release-notes/39890
XRootD	• No news since last meeting, XRootD 5.7.0 to be released at the end of this month.
HSF	• WG conveners for 2024 assigned - and plans have been presented • Activity largely around the preparations for the joint WLCG/HSF workshop at DESY ○ Registration is open but note early/cheaper registration ends on April 8th ○ Programme planning being finalised ■ Joint session with WLCG on Analysis Facilities ■ Community Software Projects ■ Training Community Lessons and Plans ■ HSF's 10th birthday and plans for the future ○ Sessions on community software/projects finalised and viewable online at https://indico.cern.ch/event/1369601/timetable/?view=standard

	There will be opportunities for discussing common projects with the Electron-Ion Collider community at the ePIC software and computing week at CERN on April 22-26 (https://indico.cern.ch/event/1343984).
CERN openlab	
IT R&D	- The next Compute Accelerator Forum will be on May 8 about the CERN GPU infrastructure and about AdaptivePerf. This will be followed by two sessions about the vendor roadmaps of NVidia on May 29 and of AMD on June 12. OSCARS project aims to consolidate activities and past achievements of the European Science Clusters through an open call mechanism. ESCAPE being the cluster for particle physics, nuclear physics and astronomy - There will be two OSCARS Open Calls: 1st starting March 2024 and the 2nd starting November 2024. Calls close after 60 days, this means closing on Wednesday 15th of May 2024, 17:00 CEST for the 1st call. Both cycles of Open Calls will be vouched by the OSCARS consortium, and particularly by the Science Cluster steering Board (SCB), in terms of current priorities/expected technical content and allocated budget. Each application can apply for funding from a minimum of €100,000 (one hundred thousand Euro) to a maximum of €250,000 (two hundred and fifty thousand Euro) with a duration from 12 to 24 months. - The calls are open to proposals responding to Open Science and Data FAIRness challenges. The main potential terms, themes and scopes of the Open Call are: - Open Science Projects and Services expected to leverage and/or exploit the Science Clusters' services aimed at demonstrating and piloting the use of EOSC resources; - Cross-RI and/or cross-domain Open Science projects or/and services, as well as projects with a high societal relevance (potentially multidisciplinary), will have a higher chance of receiving Science Cluster, RI or EOSC FAIR resources. - A particular attention will be reserved for relevant datasets from RIs, the innovative software and services for interoperability and legacy of data. - Projects that extend beyond the current group of RIs encompassed within the Science Clusters will be encouraged. This aims to achieve a greater inclusiveness of new RI communities, e.g. new RIs recently included in the updated ESFRI Roadmap, or other

	world-class science infrastructures; ■ The Science Clusters' cross-fertilisation work context will be leveraged to enhance the involvement of researchers in Open Science. Specific plans to reach out to multiple scientific communities include pilot projects that would engage with academic groups and industry, University Associations/Learned Societies, citizen scientists and the long tail of science; ■ All projects should foresee the use of data and services already on-boarded to the EOSC platform, the Science Cluster resources and/or bring new digital research objects and RI services to the EOSC Exchange platform. The proposals shall support the FAIR principles and adopt relevant FAIR metrics and EOSC policies; ■ Projects must deposit the digital research data generated in the Science Clusters' trusted catalogues or other trusted repositories federated in the EOSC ○ Who can receive financial support?The financial support provided through OSCARS is open to Research Infrastructures, Universities, Institutes, consortia as well as individual researchers. Third parties receiving financial support are not subject to the rules on eligibility for funding provided for in Article 23 "Legal entities eligible for funding" of Regulation 2021/695 of the European Parliament and of the Council of the 28th of April 2021 establishing Horizon Europe. ○ In IT, the proposals are collected and discussed by the Innovation Review Board, chaired by Alberto di Meglio. It would be good if EP and It could be mutually aware of the proposals and discuss the areas of overlap. Alberto DM is happy to act as contact person from the IT side.
EP R&D	● Annual report and Phase I closeout is now published ● EP R&D Day will be on 22 May ○ Will cover Phase I achievements and Phase II plans
AIDAinnova	● Successful hackathon at the Catania annual meeting last month - nice trip report in the SFT group meeting

Stakeholders feedback

ALICE	•
ATLAS	• Preparing for stable beams ◦ Using 24.0.X Athena branch which was split from “main” in February • Preparing for switching to ROOT 6.30.06 and Python 3.11 in “main” branch (not to be used for this year’s data-taking) ◦ Former looks good in our dev4 nightlies so we don’t expect problems • Updates to eosfuse broke some workflows running in Centos7 containers ◦ Swiftly resolved ◦ Anyway trying to move all workflows to recent releases which run on EL9 natively (making it clear that containers should only be a stopgap)
CMS	• At our O&C week in March we discussed the transition plan RNTuple with the collaboration. We will use an incremental object by object transition migration enabled by the blob feature added to ROOT at our request, thanks! • As the release for 2024 data taking is frozen (14_0_x), the planned ROOT release schedule is fine. We are reconsidering the release schedule for 14_1_0 given the delay of 4 weeks in the start of HI.
LHCb	• Getting ready for stable beams • Still to test the feature we requested in ROOT 6.30.06
CLIC	•
FCC	• 2nd FCC US workshop at MIT: visible increase in interest from the US community • Work on ALEPH data migration to EDM4hep started and making progress

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| | <ul style="list-style-type: none">○ DELPHI policy about data access changed recently, making migration possible |
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AOB

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Action Items:

- Predrag and Gerri will think if a new email list would be useful for announcements like the DBoD upgrade announcement, as well as other issues mentioned under AOB.
 - **Closed** via the ep-sft-info@cern.ch group (see above for details)
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Minutes

- ROOT Quarterly report presentation was well received and useful; would like to also make these presentations in SFT group meetings, along with the other projects.
 - ATLAS and CMS noted that more advanced warning of these presentations would be much appreciated and would allow more people to attend.
- Geant4 PoW presentation will cover all areas of work, beyond those of interest to LHC experiments (Geant4 DNA, etc.). This is the plan, there will not be a progress update at this time.
- Mac OS X Fuse-t works via an NFS layer, but preserves the CVMFS API; performance testing will be done
- Stacks update to 6.30.06 to be agreed with LHCb
- xz is included in HepOSLibs, but it's a much earlier version than the one which was backdoored
- OSCARS funding should be available to numerous CERN entities, e.g. SIS supporting open data tools. It will be broadcast to them.
- CMS 14_1_0 would keep the same versions of ROOT and Geant4 as 14_0_X
- LHCb will check the ROOT 6.30.06 features and then request an LCG stack build with this
- Marco's presentation on LHCb framework plans is not yet confirmed for May
- FCC US workshop prompted some requests for software support.
 - Containers to setup the release would be useful

- A lot of groups working on detector software specifically
- ALEPH data migration to EDM4hep is progressing well; DELPHI are making their data more available as well