Summer is here and so is our newsletter. This edition introduces our pan-European plans, presents the next work package and checks in on conferences. To pass hot working hours, give our "summer reading list" a try!

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Into the EVERSE

Summer. Sun. Work? Yes! But not to worry, we got you covered with news. EVERSE is expanding its international collaboration to Africa at a conference in Zimbabwe. Next up in our Work Packages series is WP4 - Pilots and Drivers, and as a special summer treat check out our reading list, recommended by the EVERSE people.

We wish you an enjoyable summer!

Sanje Fenkart

Communications Officer

Accelerating Research Software Quality in Paris

Computing and software for the Large Hadron Collider (LHC) experiments at CERN is a huge activity. The experiments already have more than an exabyte of managed data, across hundreds of sites worldwide. Their software stacks consist of millions of lines of C++ and Python, developed over decades and needing to be maintained for decades more. To help manage, understand and develop this data and software engine the Worldwide LHC Computing Grid (WLCG) and the HEP Software Foundation (HSF) had a workshop at IJCLab in Orsay, near Paris in May. We had the

great opportunity to present a broad range of the EVERSE project during the workshop.

We started off with a talk that introduced the overall project, with WP1 leader Graeme Stewart (CERN) outlining the main project activities and our goals. The three-tier classification of software that EVERSE uses, maps very well into the software space of high-energy physics, where software ranges from analysis plotting code for a single paper to highly tuned simulation and reconstruction software, running billions of times and requiring the highest standards of runtime efficiency and correctness. Graeme also introduced the EVERSE Network, which builds on the EOSC Science Clusters to form a new community of researchers interested in code.

Then Michael Sparks (University of Manchester) took things to a much more practical level, outlining the use cases from the Science Clusters that EVERSE is working on to understand the real issues that software developers are facing. This knowledge then informs one of EVERSE's key outputs, the RSQKit, which is a hands-on, practical guide to improving research software quality and making it FAIR. Michael used an interactive survey to give the audience a real chance to provide their input to the process.

Training for researchers in software is an under-resourced and under-recognised activity and Kenneth Rioja (CERN) took us through the EVERSE plans to build on existing infrastructure from other communities to have an improved software catalogue for the ESCAPE Science Cluster (of which HEP is a part), and to improve recognition for trainers.

We think that all of these actions can make a big difference, but how do we measure them? As well as the software quality metrics EVERSE is working on, Caterona Doglioni (University of Manchester) who co-leads EVERSE WP4, has been trying to understand the real *environmental impact* of our software and computing workflows and introduced the session on Environmental Sustainability at the workshop. This is a hot topic for WLCG and HSF and can be a strong and important line to follow in the EVERSE Network. We very much look forward to further engagement with this important science community.

By Graeme Stewart

Clustering together: WP4 says hello

In order to really connect with researchers across all sciences, Work Package 4 acts as an interface between EVERSE and the EOSC Science Clusters. Aiming to integrate pilots and drivers, WP leaders Guido Juckeland (HZDR) and Caterina Doglioni (UNIMAN) bring their own engagement and experience into the project.

How did you get to know about EVERSE? +

Caterina: With my group, I had been working on Open Science in ESCAPE and I have been involved in the HEP Software Foundation to promote and improve common software in high energy physics for a few years, so EVERSE seemed the right place to join forces with other communities to make software a centrepiece of research, all together. Guido: The Helmholtz Federated IT Services (HIFIS) also have a strong RSE component and is collaborating with the Dutch eScienceCenter on the development of the Research Software Directory (RSD). The colleagues from the Netherlands told us about EVERSE and got us in contact with the lead-PIs who welcomed us with open arms and allowed us to contribute to the proposal.

What made working with the Science Clusters appealing to you? +

Guido: I work for the Computational Science Department at the Helmholtz-Zentrum Dresden Rossendorf (HZDR) where we work with scientists on improving their research through better digital workflows. The chance to be able to learn from all the Science Clusters what their good practices are is the source of inspiring information for our team and me. As a result, we hope to offer even better suited solutions both for the scientists at HZDR but also for the whole Helmholtz Association. Caterina: My research focuses on new data taking and data analysis techniques in dark matter searches at the Large Hadron Collider. I started working within ESCAPE and the Science Clusters through the EOSC-Future project, where I coordinated one of the EOSC Science Projects - the Dark Matter Science Project for FAIR end-to-end workflows on a common Virtual Research Environment. Seeing so many different research infrastructures from different fields come together and make progress in projects that combined Open

Science computational tools and scientific challenges across all the different Science Clusters was a great experience. In EVERSE, we now have the chance to go deeper into software excellence as a common ground that is indispensable to everyone, and consider the experiences of researchers with different backgrounds to build something bigger than what we could have done in individual fields.

How would you describe the Science Clusters? +

Caterina: The Science Clusters give researchers a reason to work towards a common focus and common goals, rather than being limited to one's lab or analysis or experiment (my field includes collaborations of thousands of people, so it's easy to think we have everyone we need right there!). What we're doing in EVERSE with our Cluster pilot use cases is only the start, as the Science Clusters are rather diverse in themselves in terms of project sizes, backgrounds and needs, but it already helps us being curious about each other's research environments, tools and culture. Guido: I find it amazing to see how science unites people. While the clusters themselves are quite different, from highly organized to more loosely networking, they are all working towards better science through better digital tools. What I also need to remind myself every once in a while: The project members in EVERSE only cover a small fraction of the Science Clusters and rather serve as a gateway to even further interaction.

How do you work with the Science Clusters? +

Guido: At the moment we try to use our project members as communication gateways into the communication structures of the Clusters, so that we can push information about EVERSE but also pull information about the Clusters' specific needs and solutions around research software. In the future we hope that more and more members of the EVERSE Network can also join the regular meetings of WP4 so that we interact even more directly. Caterina: We are striving to have a feedback loop - we want to understand and collect what works for the Clusters, and help place these good (enough) practices into a common knowledge base (the RSQKit) that can be useful for everyone. The Clusters are also invited to contribute with feedback and prioritisation on what works for them. In practice, we do this through the pilot use cases, who have dedicated members interacting with the other EVERSE components to build up this feedback loop.

What are you most excited about? +

Caterina: I am working with several early-career researchers in the pilots from the ESCAPE cluster, and they are gaining a huge amount of insight on software that improves research (we all have software sustainability stickers "Better Software Better Research"!) through the RSQKit and the training opportunities. I am looking forward to seeing

them and their software grow throughout the project and especially see them understand in practice how this journey has improved their research. When EVERSE started, I was relatively new at the University of Manchester, and I am grateful to EVERSE for the opportunity to connect to great colleagues at UNIMAN in the e-Science Lab (from the life sciences and ELIXIR) and to the Software Sustainability Institute. I really enjoy working and interacting with them and we are making connections that will last beyond this project. Guido: I am truly amazed by the amount and quality of information that RSQKit, the TechRadar and other outputs of EVERSE are producing. I plan to make use of all this information in my own RSE class next year and am very much looking forward to seeing the reaction of the students. I am personally very grateful for the interactions that working with the EVERSE project partners has already enabled for my own research. I am now directly involved in improving metadata for research software and am also involved in proposing a concept for a German RSE institution via the FutuRSI project.

Beyond Europe: EVERSE goes Africa

We are excited to announce that EVERSE has partnered with the UbuntuNet Connect conference, taking place from 30-31 October in Harare, Zimbabwe. The collaboration brings together European and African research engineering communities.

UbuntuNet Alliance is the National Research and Education Network for East and South Africa. Every year, they organise a two-day conference with a broad framework programme around the event. This year, the programme features plenary sessions and breakout groups which will address software sustainability, impact measurements, reward systems and FAIR research software practices. Training sessions and demonstrations will complement the policy discussions.

At UbuntuNet Connect 2025, EVERSE got granted the opportunity to participate with a workshop track during the first day of the conference and a booth in the exhibition area throughout the conference. This opens the way to connect the European and African RSE movements, assessing needs and learning from each other about the priorities in research software
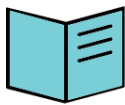
quality. The organising committee expects more than 200 participants representing research institutions, policy organisations and software-development communities from across Africa.

With this event we are looking forward to establishing new connections and expand our network of communities to world-wide collaboration. More details on UbuntuNet Connect 2025 will be announced on the webpage and as part of the registration process.

An RSE's guide to free time

Too hot to code? Is the office AC not working again or are you simply looking for something refreshing amidst the summer blues? Our project member got you covered with their recommendations to pass some time productively.

Note and disclaimer: These recommendations are purely coming from personal preferences of project members and are not commercially promoting products. Full descriptions and informations can be found by clicking on the icons.

PEP 8

Whether you're new to Python or an old stager: the PEP 8 style guide lays out all the conventions.

PEP 8 - Reloaded

Ain't no time to read that? Make the short cut to the PEP 8 song and store it as an ear worm.

Old but gold

Critical thinking is never out of date. "The New Media Reader" (2004) compiles publications

Smells like team spirit

Struggling with being a good RSE? Don't worry, if Ted Lasso learned to

on media that were novel when they launched.

be good at soccer, you can be inspired to be a good RSE.

Sci-Fi Bite-Sized

Nothing like a good summer for reading. "A Rediscovery of Man" got you covered in ~30 stories on 671 pages.

Back to the roots

Go hug a tree? Yes! "Overstory" showcases the importance that trees had and can have on people's life for generations.

The invention of Nature

Follow along Alexander Humboldt's fascinating discovery of nature's law for fauna and flora.

Weapons of math destruction

Algorithms could be great - if they wouldn't be abused. Cathy O'Neil analyses the power of big data.

The Swarm

This book saved lives minutes before the tsunami of 2004 hit South East Asia. However, it talks about "what if the Ocean striked back", for all the environmental damage we've done?

Hidden microcosms

Let's talk about moss. Yes, moss. The spongy little thing where you can imagine whole cities upon it, animals might eat it and humans use its properties for healing.

The Clockwork Universe

Rethink learning

Yes, modern science and technology are cool. But travel back to a time where you only had a few instruments, plagues and your ingenious brain.

Like Duolingo but for science skills: "Brilliant" is a visual and engaging learning platform for a diverse set of scientific (thinking) tools.

Very RSE. Very demure.

"Extreme programming" is taking you by your hand during the hard hours of coding and shows new ways to face challenges.

May the force be with you

Just trust me and type the following into your Mac terminal (hit the icon for Linux):

nc towel.blinkenlights.nl 23

Announcements & Outlook

Don't miss this year's RSECon25 from 9-11 Sept in Coventry!

More info

Join the Open Science Fair (15-17 Sept), hosted at CERN. Focus on: collaboration.

More info

Meet us at UbuntuNet Connect 2025 in Zimbabwe!

More info

Save the date for the EOSC Symposium: 3-5 Nov!

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