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news from the EGI community

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Welcome to issue 33!

This edition of the newsletter is focused on new services, the EGI Council, new colleagues and the EGI Conference 2019.

Your feedback and suggestions are always welcome!

Send an email to Sara & Iulia at:

press@egi.eu

A new Chair for the EGI Council

We are happy to announce that **Arjen van Rijn**, the Institute Manager of Nikhef and a long-time member of the EGI community, was elected to be the next **EGI Council Chair**.

Arjen was actively involved in preparing the Amsterdam bid to host the headquarters of the EGI Foundation. He was also a key member of the team that defined the statutes of the foundation and supported its legal establishment. Arjen has since represented the Netherlands in the EGI Council and has served two terms as a member of the EGI Executive Board (2010-2014).

Our new Council Chair is also an active member of the e-IRG community (since July 2012) where he focusses on the development of national e-infrastructure organisations as strong building blocks of an European backbone of digital capacities.

We believe that Arjen's lifelong commitment to the mission of the EGI Federation and his vision for the role of the EGI Foundation make him the ideal person to lead the EGI community through the challenges ahead.

"EGI federates hundreds of data centers, operating as a smooth whole, to serve pan-European research," says Arjen. "The future of this federation is our collective responsibility as EGI Council. We all have a role to play here: in our local context, in our national context & in the future European Open Science Cloud. For my part, I will do everything I can to contribute to the best possible future for EGI."

We would like to take this opportunity to thank Matthew Dovey, head of e-infrastructure at Jisc, for his leadership and contributions as EGI Council Chair for the last four years.

"I have been honoured to serve as EGI chair over the last four years where we have built strong collaborations including DI4R and EOSC-hub," says Matthew. "I wish Arjen success in leading the community through the new opportunities opened by EOSC".

> ### More information
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> **Arjen van Rijn** is the new Chair of the EGI Council and Institute Manager of Nikhef.

The XENON collaboration: zooming in on dark matter

Boris Bauermeister on XENON's mission to shed light on the dark matter enigma and how EGI contributes

The **XENON collaboration** is made of over 150 scientists in 27 institutes in Europe, US & Japan, working on an experiment aiming to detect dark matter particles in the universe.

Our most recent experiment is the XENON1T detector located within the largest underground research facility in the world: the INFN Gran Sasso National Laboratory (LNGS) in Italy. Xenon1T is a 3500kg liquid xenon detector in search of unravelling the mystery behind dark matter.

What is dark matter?

Dark matter is a form of matter that we scientists believe to account for approximately 26% of the universe. While the Earth, sun and galaxies are visible elements in our universe, dark matter doesn't reflect or absorb light, which makes it invisible. We haven't observed it directly yet but we are confident it exists for many reasons, for example the gravitational effects it seems to have on galaxies that cannot be explained otherwise.

So we believe that dark matter is out there, but what it is made of is still something very much shrouded in mystery.

The XENON experiment – the force that challenges the dark side

With the XENON experiment we are trying to go deep into the search for dark matter. The XENON1T detector aims to detect dark matter particles in the form of weakly interacting massive particles (WIMPs) by looking for their interactions with xenon atoms.

The XENON1T Time Projection Chamber

The idea is that XENON1T will detect a signal produced by the interac-tions of dark matter particles with the xenon nucleus.

Former detectors were based on the same detector concept but were much smaller in size and had less readout channels. A lot of computational challenges came up between XENON100 and XENON1T and we have made a huge step regarding our computing infrastructure. We have had increasing requirements in terms of data processing, storage and analysis - and this is where EGI came in very handy.

EGI-XENON collaboration

During the XENON100 period - processing, storing & analysing data was possible at the LNGS laboratory on dedicated machines. XENON100 detector simulations were run on EGI, at the connected institutes NIKHEF & SURFsara (Amsterdam) & CNAF (Bologna).

With XENON1T we increased the number of channels in the detector which led to larger data sets. To store, access and process these datasets we use EGI together with Open Science Grid (OSG) in the US. We added two more resources of the EGI infrastructure: CCIN2P3 (Lyon)

and the Weizmann Institute (Rehovot). The data storage is organised with grid technology which allows us to access our data easily for processing.

Processed data are later analysed at the Research Computing Center (University of Chicago). Furthermore, we run more sophisticated XENON1T detector simulations on EGI and the connected facilities are large contributors to our total storage volume (at the moment ~4 PB)

The future is bright

The next phase of our research is the XENONnT detector, which will have a dark matter target about three times larger than that of XENON1T.

Our collaboration with EGI will continue in this project, where computing resources will be paramount for data storage, processing & detector simulations.

> **More information**
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> **Boris Bauermeister** is Analysis Tools Coordinator of the XENON project.
>
> **XENON collaboration**
>
> www.xenon1t.org

EGI welcomes new colleagues

Iulia Popescu chats with Hilary Goodson and Björn Backeberg about their big move to Europe

View of Cape Town and Björn's previous route to work...

IP: Hi Hilary, hi Björn! Welcome to Amsterdam and to the EGI team! Can you tell us a bit about yourselves?

HG: Thanks Iulia. I'm Australian, from Sydney, and am a really keen sailor. I also have a close interest on classical music and served for several years on the vanguard board for the Sydney Symphony Orchestra.

BB: Hi Iulia, thank you for the warm welcome! Where to start?! I was born in South Africa, have a German passport & a Swedish name... so you could say I have a bit of an identity crisis ;-)

I've lived in South Africa most of my life, with a couple of overseas stints to Finland, the UK and Norway. I'm a surf, dog and food enthusiast, and in my spare time you will find me somewhere involving one or all of those things.

IP: Sounds fantastic! What did you do before working for EGI? What is your background?

HG: Before working at EGI, I was actually the head of strategic engagement at AARNet, Australia's Academic & Research Network. There I was responsible for growing the membership beyond our shareholders - the Australian Universities, bringing on board other research institutes.

I also worked on building a new services portfolio beyond networking into areas of compute and storage. Within this activity, my interest was working with research museums and archives. I focused on building an understanding of research infrastructure with this community to drive policy and advocacy forward and take on big projects focusing on unlocking collections to continue to push discovery.

BB: Before joining EGI I was a Principal Researcher at the South African Council for Scientific and Industrial Research and served as a co-director of the Nansen-Tutu Centre for Marine Environmental Research. The latter is a South African - Norwegian joint venture building capacity in marine research.

I'm an oceanographer by training and completed my PhD in numerical ocean modelling in 2010. Most of my work since then has revolved around developing operational oceanography in South Africa. This included developing ocean forecasting capabilities and decision support tools for marine end-users, so I spent a lot of time developing data analytics in high performance computing environments.

IP: Very interesting profiles! I'd like to ask why EGI? What do you find exciting about it?

HG: The breadth of communities EGI work with and underpin excite me, particularly the close work they do with the life sciences communities.

I also see great value on the aggregation role that EGI plays, in terms of the imprint it can have on science and research infrastructure policy, especially in this critical development period of the EOSC, and also in having the critical mass to support and develop new technologies that have the ability to be scaled out beyond individual user communities.

BB: I am most excited about learning about advanced and cloud computing technologies while supporting the research communities I have worked with so far. And I am impressed by the breadth of communities

that EGI supports and I look forward to working with them.

I like that EGI is a dynamic and futuristic company at the forefront of advanced computing developments for science!

IP: And we are happy to have you both on board at EGI. Hilary, you come from Australia...and Björn, you come from South Africa. What made you consider moving all the way to Europe? That's a big change!

HG: My work had been bringing me to Europe more and more often for collaborations, both with institutes & on the technical development level. I really appreciated the depth and the ambition which could be see throughout the research ecosystem, and resolved to be a part of it.

BB: We (my better half and I) have always wanted to spend more time in Europe, so being based in Amsterdam makes it that much easier to explore Europe and visit the friends and family we have here. We are also really looking forward to experiencing all the different cultures and their heritage!

IP: How do you find Amsterdam so far? We hope you'll survive the weather...

HG: Grey. Quietly majestic. Friendlier than anticipated.

BB: I have really enjoyed Amsterdam so far! I love the architecture, the canals and the diversity of foods! Weather has been a lot colder than what I am used to, and the number of daylight hours at the moment are... a little on the low side.

IP: It will get better, I promise. The spring will bring us the rain... I mean the sun! Haha. What are some challenges that you see in your new job?

HG: Ask me in 6 months!

BB: The biggest challenge so far has been transitioning from the user and researcher perspective to the IT provisioning perspective, for me, quite a big career change. Trying to understand the technologies EGI provides while learning about the science and workflows of new scientific disciplines has been an interesting and challenging task!

IP: Hilary, tell me something everyone should know about Australia. And what do you love most about it?

HG: It's always summer...

IP: Björn, what about South Africa?

BB: South Africa is a massively diverse country not only in its landscapes but also in its people and cultures, you can live there a lifetime and not experience everything the country has to offer. I have travelled a fair amount and I always love coming home! We also have great wine...

IP: Thank you very much and I hope you'll enjoy your new life in the Netherlands and at EGI!

HG: Thanks a lot!
BB: Definitely, thank you!

More information

Björn Backeberg is Senior User Community Support Officer at the EGI Foundation.

Hilary Goodson is Senior Strategy and Policy Officer at the EGI Foundation.

Iulia Popescu is Communications Officer at the EGI Foundation.

New EGI services: Notebooks and Workload Manager

Yin Chen and Enol Fernández introduce the new services

Notebooks

Notebooks is a new service introduced as beta in the EGI service catalogue. Notebooks provides an interactive data analysis environment based on the Jupyter system, running on top of the EGI Federated Cloud & using Check-in for authentication & authorisation.

Users of the Notebooks service can create and share documents that combine text, mathematics, computations and their rich media output to perform any kind of research task, e.g. data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more on the federated EGI resources. Individual users can use a catch-all instance of the service with limited resources & communities can request the setup of specific instance for their needs. The service is operated by the EGI Foundation and runs on

resources provided by INFN-Catania and CESGA cloud sites.

A number of communities, such as AGINFRA+, EPOS, OpenDreamKit and D4Science, and individual users are testing the service during this beta phase and will be moved to full production during 2019.

Workload Manager

Workload Manager was recently included in the EGI service catalogue also as a beta service and is based on DIRAC technology.

Workload Manager is suitable for users who need to exploit distributed resources in an easy and transparent way.

The service optimises the distribution of their computing tasks among the available resources, both HTC and Cloud. Workload Manager has a user-friendly interface and also allows easy extensions for the needs of specific applications via APIs.

The service is coordinated by the EGI Foundation and operated by IN2P3 on resources provided by CYFRONET. A number of EGI communities have adopted the Workload Manager service, including WeNMR, OPENCoastS, EISCAT-3D and VIRGO.

For example, the WeNMR community uses Workload Manager for a number of their tools, and reported an improvement from previous 70% to 99% with DIRAC job submission.

More information

Yin Chen is Senior Technical Outreach Expert at the EGI Foundation.

Enol Fernández is Cloud Technologist at the EGI Foundation.

EGI Conference 2019: call for abstracts is open

The **EGI Conference 2019** will take place in Amsterdam, 6-8 May 2019, as a forum for the EGI Community to discuss the state of the art of the EGI Federation, future and emerging trends, requirements and experiences: national, local and at the level of the data centre.

The Programme Committee has opened a Call for Abstracts and invites the EGI Community to submit abstracts for presentations

and posters. Site managers and members of the distributed operations and technical teams are strongly encouraged to send their contributions. The deadline for contributions is 8 March.

The EGI Foundation is organising a Design your e-Infrastructure Workshop on 9 May 2019.

This workshop is intended for research communities and research infrastructures who wish

to become active users of EGI services. The workshop is free but the number of places is limited & registration is required.

More information

EGI Conference 2019

http://go.egi.eu/conf19

The EOSC Portal and EOSC Marketplace

Tiziana Ferrari introduces an online platform set up to empower researchers

The European Open Science Cloud is an initiative of the European Commission set up to implement a large infrastructure to support open science and open innovation in Europe.

The main vehicle to deliver the services researchers need for their work is the **EOSC Portal**.

The EOSC Portal was launched in November 2018 in Vienna, following an intense period of work undertaken by the EOSC-hub, EOSCpilot, OpenAIRE-Advance and eInfraCentral projects. The result is an online platform where researchers can learn about what is available, as well as access services & tools to manage data and compute & storage resources through the **EOSC Marketplace**.

The EOSC Marketplace is where researchers can discover, order and access services & resources that conform to community best-practices and standards. Through the EOSC Marketplace, researchers can also obtain assistance from international technical teams on the most suitable solutions to address their digital needs.

From the supplier side, the EOSC Marketplace offers local, national and international providers, such as European e-Infras and Research Infrastructures, the opportunity to advertise their own services and resources to a broader community of practice.

EGI in the EOSC landscape

The EOSC marketplace is co-funded by EGI participants' fees & the H2020 EOSC-hub project, and is technically developed and operated by two EGI partners: CYFRONET (Poland) and the Vrije Universiteit Brussel (Belgium). The EOSC marketplace leverages the development efforts and experience gathered during the EGI-Engage project.

The EGI Federation is now offering all its user-facing services through the EOSC Marketplace. Researchers from all disciplines can now access the federation's compute, storage & professional services with the digital convenience of an online platform.

For example, with the EGI Cloud Compute service, researchers can:

-> Discover EGI Cloud Compute in the EOSC Portal (under the Compute category)

-> Proceed further to the EOSC Marketplace entry

-> Analyse the four configuration options offered off the shelf (GPUs, High-memory, Compute-intensive or General Purpose)

-> Place an order

But the EGI contribution to the EOSC Portal goes even further: the EGI Federation is also providing the back-end compute abilities that power a significant number of thematic services and analytical tools offered through the marketplace. The compute resources are guaranteed via Service Level Agreements signed by the service providers and the data centres that contribute hardware, and brokered by the EGI Foundation.

Here are two examples:

• **HADDOCK** & the other tools in the WeNMR suite for Structural Biology are powered by High-Throughput Compute resources pledged by seven EGI data centres: INFN-Padov, RAL-LCG2, TW-NCHC, SURFsara, NCG-INGRID-PT, NIKHEF, & CESNET-MetaCloud.

• The **DARIAH Science Gateway** is operated by LPDS SZTAKI and uses Cloud Compute resources from two EGI cloud providers: INFN-BARI and INFN-CATANIA.

More information

Tiziana Ferrari is the Technical Director of the EGI Foundation and coordinates the EOSC Portal activities.

EOSC Portal

www.eosc-portal.eu

Ukraine joins the EGI Council

Sara Coelho writes about the newest member of the EGI family

Ukraine has joined the EGI Council as an Associated Participant, after a fruitful collaboration going back for many years.

The **Ukrainian National Grid (UNG)** is an e-infrastructure set up to share and manage the resources of 26 Ukrainian institutes and universities. The UNG has 14 clusters fully integrated in the EGI Federation since June 2012. The Ukrainian resources are available to researchers via 9 Virtual Organisations (VOs):

• **CMS & ALICE** - High-energy physics;

• **MolDynGrid** - Molecular biology;

• **Medgrid** - Medical grid-system for research in the field of cardiology;

• **SysBio** - Reconstruction of gene regulation networks;

• **MatModEn** - Mathematical modeling in energy problems;

• **CompuChemGridUA** - Quantum chemistry;

• **Multiscale** - Solution of a wide range of scientific problems;

• **GEOPARD** - Calculation of three-dimensional seismic full-wave models in a grid environment;

• **VIRGO.UA** - Cosmology and astrophysics;

Ukraine and EGI

The "Digital Agenda for Ukraine 2020" sets up a vision to develop a modern digital infrastructure for research in Ukraine to reduce the technological gap, to establish the use of data-driven science innovation alongside the European Union & the countries of the Eastern Partnership.

The EGI Federation, with its commitment to provide services for research and innovation, is an obvious partner for this ambitious goal.

So last year **Anatoly Zagorodny**, Director at Bogolyubov Institute for Theoretical Physics, Vice-president at National Academy of Sciences of Ukraine, and Yannick Legré, managing director of the EGI Foundation, started the discussion on membership options for Ukraine.

Ukraine became as Associated Participant, represented by the Bogolyubov Institute in 2018.

The benefits of joining the EGI Council include:

• **Services**: Being able to offer sustainable digital services for users - both scientists and industry/SMEs;

• **Projects**: More possibilities of collaboration between researchers and industry from Ukraine and EU through joint projects;

• **EOSC**: Technological and resource support for Ukraine's participation in EOSC and the possibility of implementing a pilot project to create the National EOSC Hub in Ukraine.

More information

This article was prepared with the support of the UNG representatives: **Sergiy Svistunov**, **Andriy Shevchenko** and **Volodymyr Nochvai**.