

# Access EGI resources through the ESCAPE developed ESFRI Science Analysis Platform

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## ABSTRACT

The EU ESCAPE project is developing ESAP, ESFRI's scientific analysis platform, as an API gateway that enables the seamless integration of independent services accessing distributed data and computing resources. At ESCAPE we are exploring the possibility of exploiting OpenStack EGI's cloud computing services through ESAP. As a use case, we are considering one of the studies known as Data Challenges used to prepare the community to work with the data to be generated by the Square Kilometer Array (SKA).

In our contribution, we describe the technical steps performed: we registered to the Virtual Organisation vo.access.egi.eu to count on the necessary development and test resources and we automated the creation of a Virtual Machine through the EGI fedcloud client. We automated the installation on a cloud virtual machine instance of the suitable analysis software through a software framework developed at IRA-INAF, called ira-init. We plan to provide ESAP's users with resources access writing an ESAP connector.

In this first prototype data access is simplified through NFS mounted storage or a cloud data volume. Data transfer tests are being conducted using storm-webdav to provide users with the ability to analyze the data both locally and remotely.

### The ESCAPE EU project



ESCAPE stands for European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures. The project aims to address the Open Science challenges shared by ESFRI facilities (SKA, CTA, KM3Net, EST, ELT, HL-LHC, FAIR) and pan-European research infrastructures (CERN, ESO, JIVE) in astronomy and particle physics.

Our interest is focused on two of the main actions of the project:

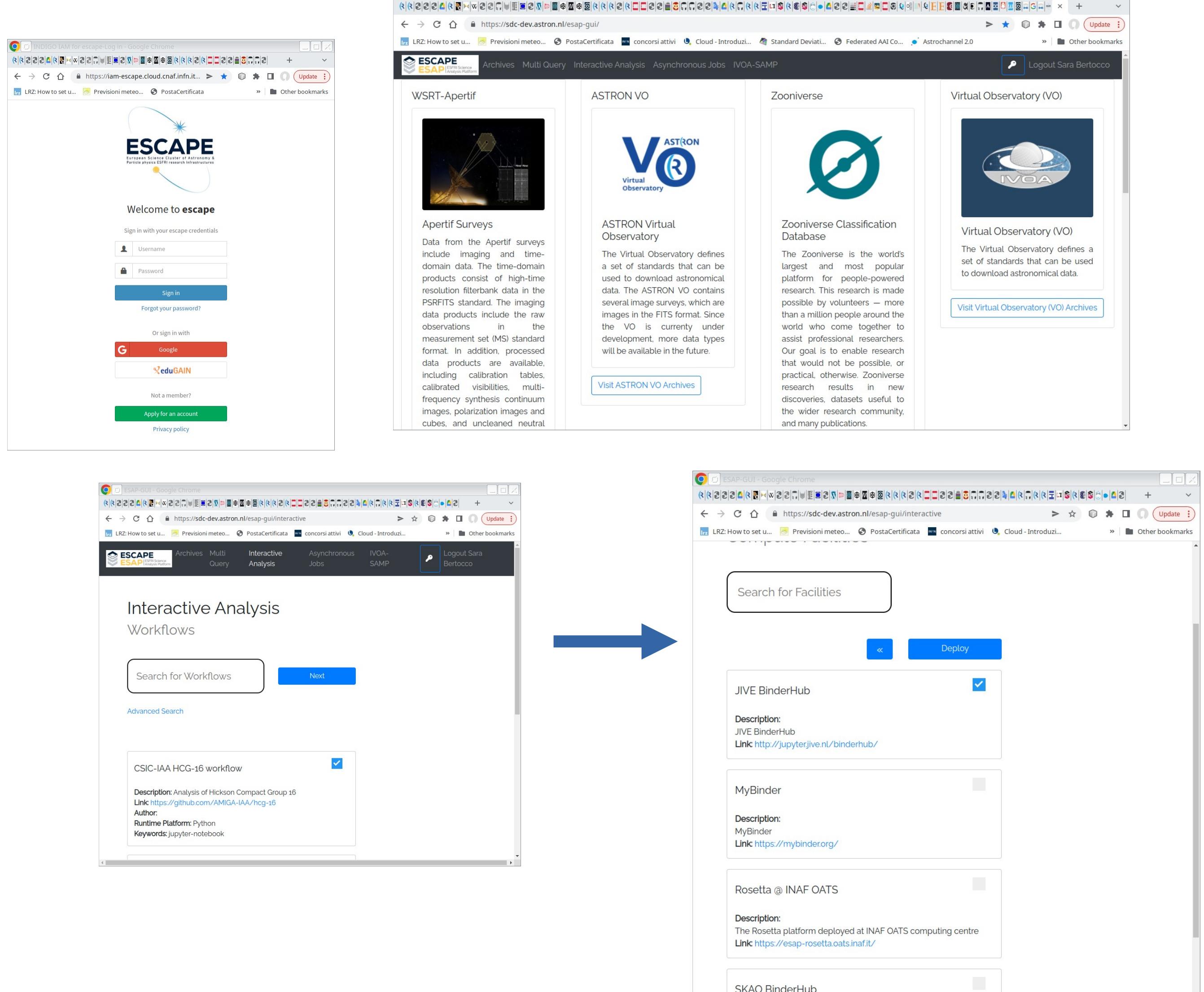
- ▶ connect ESFRI projects to EOSC ensuring integration of data and tools
- ▶ establish interoperability within EOSC as an integrated multi-messenger facility for fundamental science.

### The ESAP platform

ESAP stands for ESFRI Science Analysis Platform.

ESAP is a flexible science platform for the analysis of open access data available through the EOSC environment. It allows EOSC researchers

- ▶ to identify and stage existing data collections for analysis,
- ▶ to select among software tools and packages developed by the ESFRIs or bring their own custom workflows to the platform,
- ▶ to exploit the underlying computing infrastructure to execute those workflows.



Researchers can select datasets from different archives.

A set of workflows is provided, the researchers can select the workflow of interest and then choose to deploy it in a suitable infrastructure.

### The EGI federated cloud



The EGI Core is a federation and management platform that pool together various resources. The EGI Federated Cloud Platform (FedCloud) is a federated cloud infrastructure. The EGI cloud compute service gives users the ability to deploy and scale virtual machines on-demand.

## ESCAPE & EOSC Integration

We worked in the scope of WP4 (Connecting ESFRI projects to EOSC through VO framework) and WP5 (ESFRI Science Analysis Platform) of the ESCAPE (European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures) European H2020 project to integrate IVOA compliant Virtual Observatory (VO) services within the EOSC hybrid cloud scenario, to test containerization of VO aware applications, to provide run pipeline for the SKA data challenges.

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