

# Future Plans



# Where are we now?

Query multiple archives with an adaptable interface

Load software from the ESCAPE repository

Integration with ESCAPE Identity & Access Management

Built with Python, Django, and React

Data orchestration across multiple services

Interactive Data Analysis through BinderHub services

Upload data using IVOA SAMP



## Conclusions

- ▶ Software VM creation in EGI fedcloud is feasible
- ▶ Automation is challenging
  - Work needed to standardize information to make possible automation
- ▶ Work is needed to make homogeneous authentication and authorization
- ▶ Future plan: Evaluate and try EGI container compute

## Summary and Next Steps

- **Rucio** integrated with **ESAP** for data discovery
- Data lake as a Service brings **computation to data** managed by Rucio

## Future

- Improved query mechanism
  - **Metadata** over DIDs?
  - Improved IVOA metadata integration in development
- More streamlined authentication mechanism
- Tighter integration with interactive analysis

## Next Steps

- Migration to RUCIO
  - Testing phase (end of 2022)
- Integration: the ESCAPE Datalake
  - Issues: Authentication
- Provide compute infrastructure
  - Issues: Authentication

- Authentication
  - x509
- Defining and finding the steering file
  - IVOA Execution Planner
- How to get your output
- More general framework for other WMS

## What is missing

## Future Plans

- Desktop Tools as a Service
  - Deploying a Desktop tool in a container on an IDA environment along with the data
  - Rosetta has been the targets of our initial experiments as a Compute Service that
- Automatic mounting data at IDA facility
  - Moving the data automatically on behalf of the user, so that when deployed, everything (data & software) is available for the user without requiring any additional actions
- ESAP to provision VMs for Interactive Analysis automatically
  - Requires having a compute resources available, and a VM provisioning system (i.e. Openstack) connected and available to ESAP
  - User then can request that an IDA environment become available on a given system, and we can create VM, setup environment, and redirect them to it.
- Associating Software with Data
  - Recommend Software based on what Data has been selected by the user

## ● How to evaluate ESAP?

- ESAP is not a Research Software
- ESAP is a service (*a toolkit rather a running service*)
- ESAP a service to support scientists in following Open Science practice
  - → How to evaluate this?

# Technical Challenges

## ● *ESAP Technical Improvements:*

- Improved provenance tracking & robust PID support — and FAIRness?
- Data sharing & collaborative workflows.
- Persistent development & analysis environments.
- Richer understanding of the semantics of and relationships between data products.
- Federation between ESAP instances.

## ● *Sustaining ESAP:*

- Ongoing open source development and maintenance.
- Safety and security.
- Continued effort to integrate new ESFRI services as they become available.
- The core of a virtual research environment.

## ● *Common standards:*

- Move beyond the current explosion of bespoke science platforms to common standards and platforms that provide federated access to compute, analysis, archive etc services. Relationship to e.g. the Rubin Science Platform? A “VO” like system for science platforms?
- **IVOA Execution Planner** as first step?



# Adoption

*The ESAP provides an excellent toolbox from which one can build and tailor a Science Platform... CTAO has been able to identify key technologies and ideas which it will further investigate in the future... We look forward to further work together on these topics in future collaborations.*

**Matthias Füßling, Science User Support System Coordinator at CTAO**

*A number of ESCAPE members are now involved in SKA Regional Centre prototyping; will continue to work with the contacts we have made.*

**James Collinson, Scientific Programmer at SKAO**

*SKA Regional Centre science platform prototyping is investigating and may build upon the work done in ESAP.*

**Yan Grange, Software Developer at ASTRON  
and SRC Team Tangerine Product Owner**

...your project here?



# The ESCAPE Collaboration



<https://www.youtube.com/watch?v=EOwmjNljxCA&t=9555s>



# References

- ESCAPE:
  - <https://www.projectescape.eu>
- ESAP Installation & Deployment:
  - <https://git.astron.nl/astron-sdc/escape-wp5/esap-deployment>
- ESAP documentation:
  - <https://git.astron.nl/astron-sdc/esap-api-gateway/-/wikis/home>
- WP5 code repositories:
  - <https://git.astron.nl/astron-sdc/escape-wp5>
- Issues and outstanding work:
  - <https://git.astron.nl/groups/astron-sdc/escape-wp5/-/issues>



# Thank you all for joining us!

...and special thanks to:

- All our speakers over the last couple of days, and to Klaas for chairing today's discussion.
- All the members of ESCAPE WP5 for being such fantastic colleagues over the last few years.

