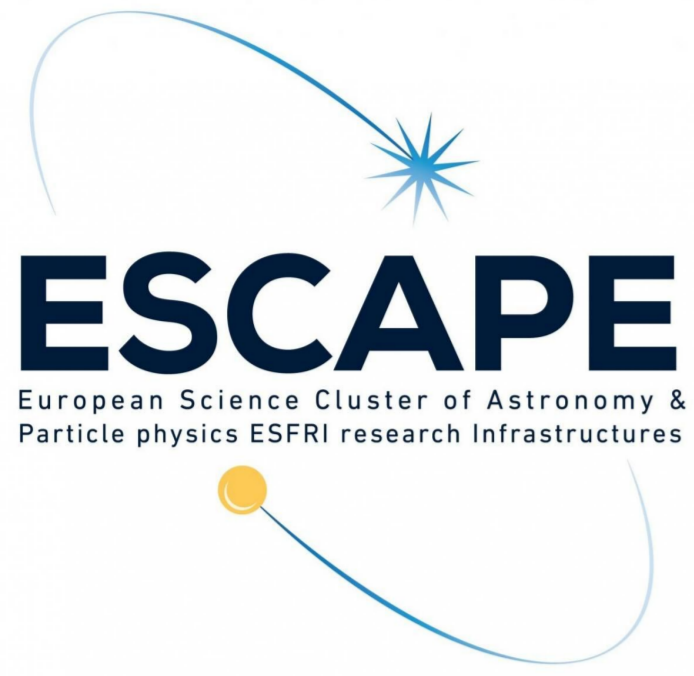


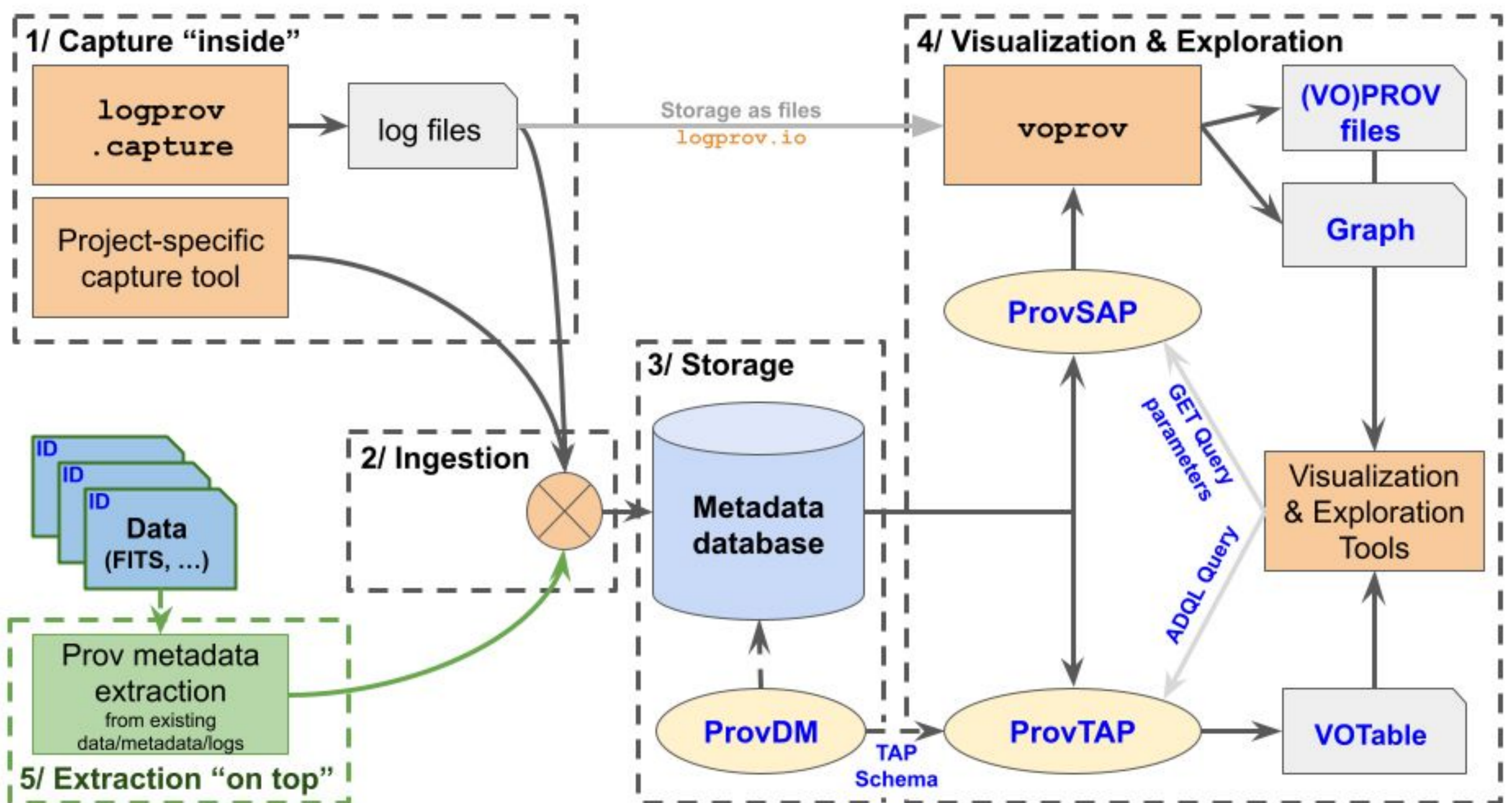
# Towards a provenance management system for astronomical observatories



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We present a provenance management system adapted to astronomical projects needs. We collected use cases from various astronomy projects and defined a data model in the ecosystem developed by the IVOA (International Virtual Observatory Alliance). From those use cases, we observed that some projects already have data collections generated and archived, from which the provenance has to be extracted (provenance “on top”), and some projects are building complex pipelines that automatically capture provenance information during the data processing (capture “inside”). Different tools and prototypes have been developed and tested to capture, store, access and visualize the provenance information, which participate to the shaping of a full provenance management system able to handle detailed provenance information.



## Structure of the provenance management system

**1/ Capture "inside":** provenance information is recorded during the execution of a pipeline that runs various processing steps, generates intermediate data files...

**2/ Ingestion:** the captured information is transported in a structured format that can be parsed and managed.

**3/ Storage:** the ingested information is then safely stored in a database that preserves its logic.

**4/ Visualization and exploration:** the full provenance can be queried and visualized.

**5/ Extraction "on top":** already existing data from which provenance can be extracted and ingested in the system.

## Python packages:

- `voprov` <https://github.com/sanguillon/voprov>
- `logprov` <https://github.com/mservillat/logprov>

## IVOA Recommendations:

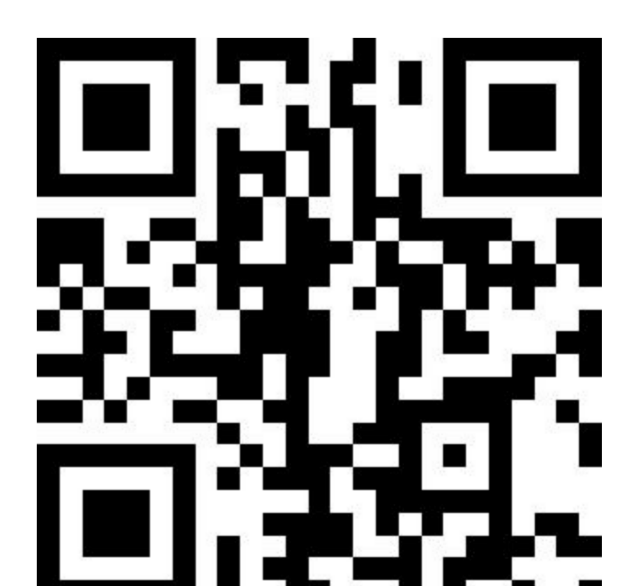
- **ProvDM:** Data Model
- **ProvSAP:** Simple Access Protocol
- **ProvTAP:** Table Access Protocol
- **ADQL:** Astronomical Data Query Language

Paper



<https://tinyurl.com/caycbtfj>

Video



<https://tinyurl.com/fumbn2bc>