EOSC-Pillar

Software source code preservation, reference and access
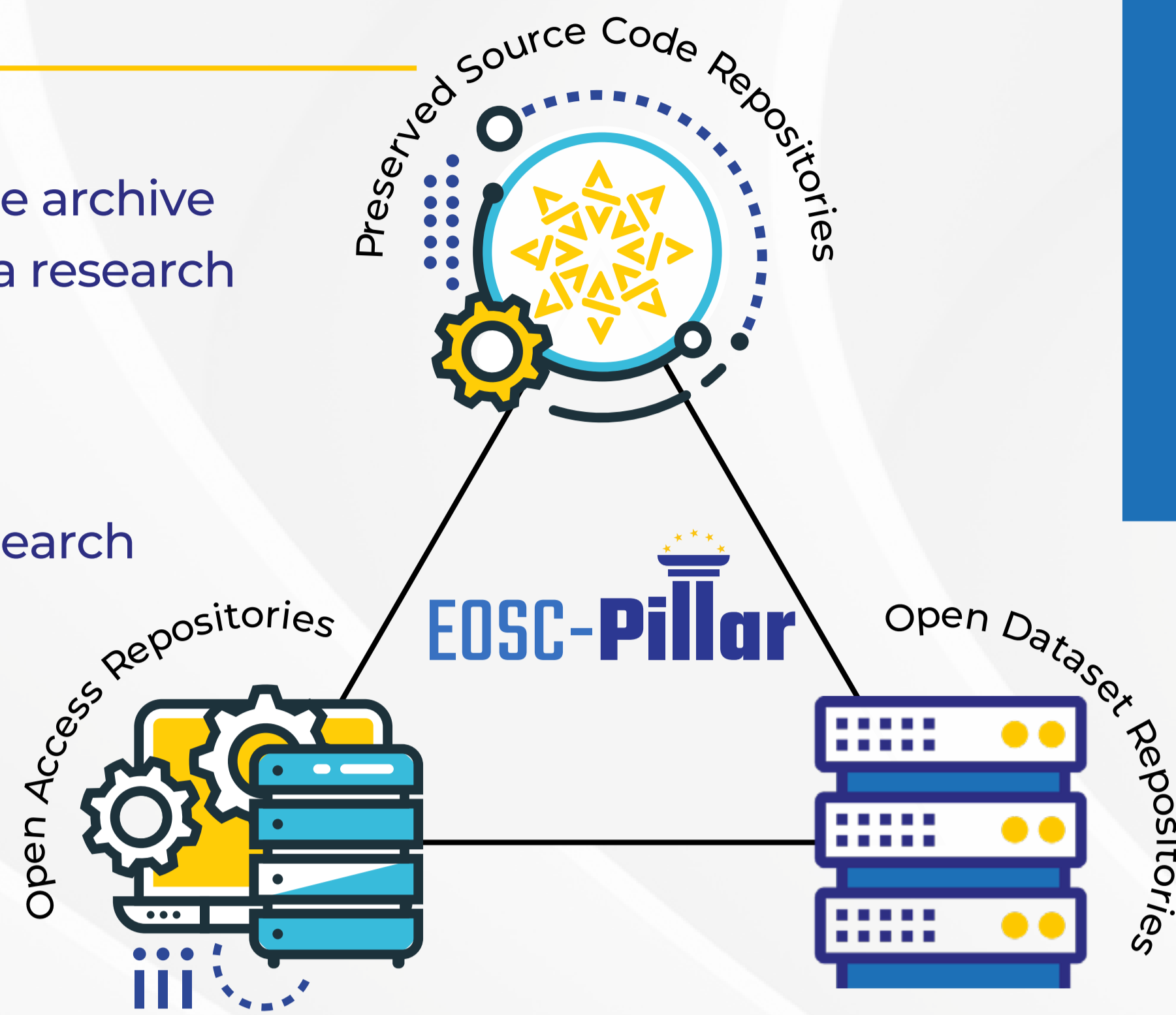## A Pillar for Open Science and Reproducibility

Provide services to EOSC partners

★ **Deposit** or Save software source code artifacts in the Software Heritage archive
★ Get intrinsic **Persistent Identifiers** to any source code artifact used in a research project available the entire body of
★ **Retrieve** any source code artifact used in a research project
★ **Describe** source code artifacts used
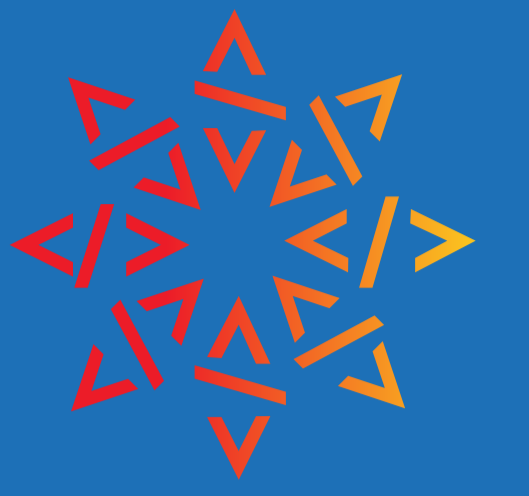★ **Ensure** long term preservation of anysource code artifact used in a research project

https://marketplace.eosc-portal.eu/services/software-heritage-archive

Preserved Source Code Repositories

Open Access Repositories

EOSC-Pillar

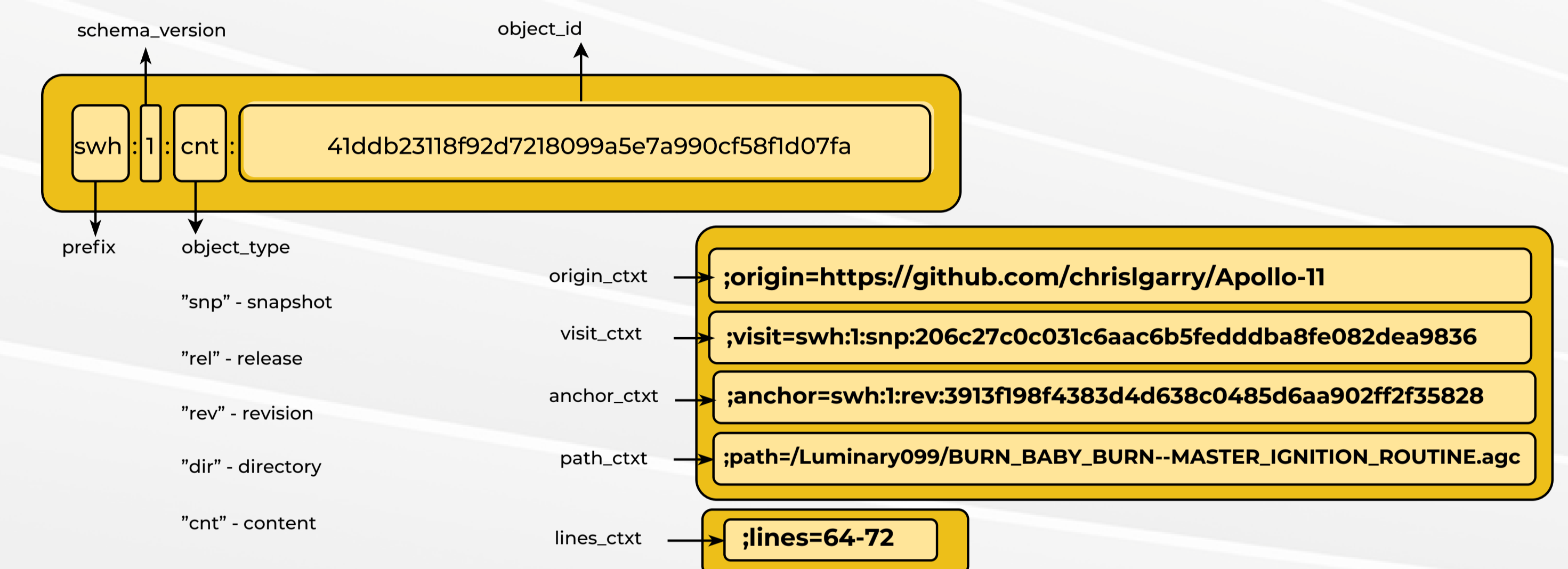Open Dataset Repositories

What is Software Heritage?

Our mission is to **collect**, **preserve forever**, and make **publicly available** the entire body of software, in the preferred form for making modifications to it.

https://softwareheritage.org

Public forges

git mercurial

Works with

Researcher

Execute code on

JupyterHub/Binder based services
EOSC-Pillar *e.g.T6.2, T6.3, T...*

Can fetch source code from public repositories

Upload paper & software on scholarly repositories

Query SWH to save a public code repository

Can fetch source code from Software Heritage*

Software Heritage

Vault
Save Code Now
Deposit
EOSC-Pillar

Retrieve publicly available source code

HAL science ouverte *see also UC6.5*
Scholarly Repository
archived swh:1:dir
ZIP source code archive
</> CodeMeta metadatafile
https://hal.inria.fr/hal-01738741/
IPOL, eLife

Upload the software source code on SWH and retrieve a SWHID

PROGRAMME **VITAM** archivage numérique
EOSC-Pillar CiNES

SWH is archived in CINES' Vitam platform

https://faircore4eosc.eu/eosc-core-components

Software Heritage Mirror

eosc **FAIRCORE4EOSC** Core Components Supporting a FAIR EOSC

Scholarly Repository
archived swh:1:dir
ZIP source code archive
</> CodeMeta metadatafile

* feature is still in development

SWHID: persistent intrinsic identifiers for source code artifacts

★ **Persistant**, **unique** and **Intrinsic** identifiers
★ Allow reliable cross-reference software source code artifacts in **scientific publications**

schema_version object_id

swh : 1 : cnt : 41ddb23118f92d7218099a5e7a990cf58f1d07fa

prefix object_type

"snp" - snapshot origin_ctxt ;origin=https://github.com/chrislgarry/Apollo-11
"rel" - release ;visit_ctxt ;visit=swh:1:snp:206c27c0c031c6aac6b5fedddba8fe082dea9836
"rev" - revision anchor_ctxt ;anchor=swh:1:rev:3913f198f4383d4d638c0485d6aa902ff2f35828
"dir" - directory path_ctxt ;path=/Luminary099/BURN_BABY_BURN--MASTER_IGNITION_ROUTINE.agc
"cnt" - content lines_ctxt ;lines=64-72

https://swhid.org
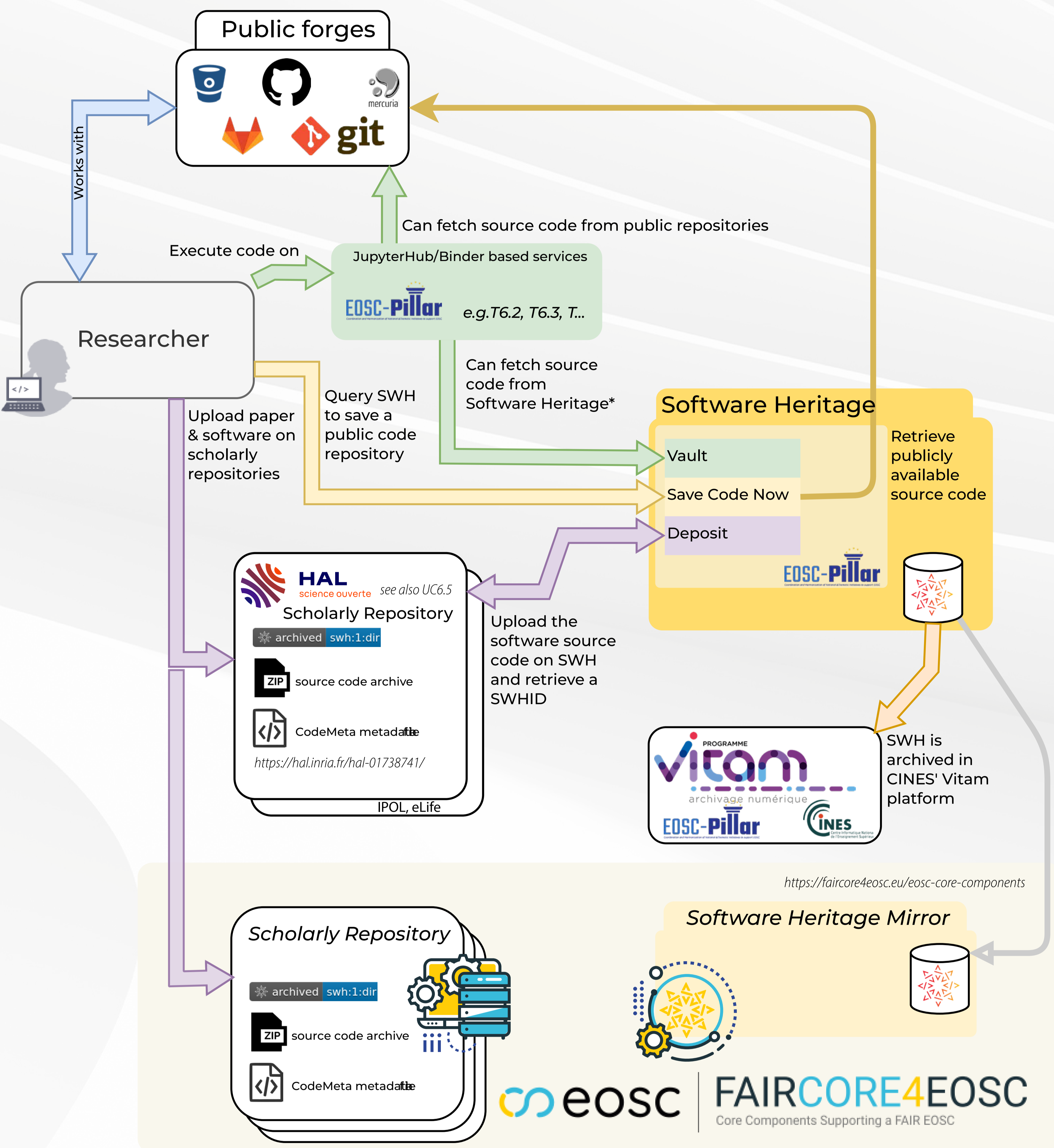https://docs.softwareheritage.org/devel/swh-model/persistent-identifiers.html

APIs: integrate the SWH Archive in your infrastructure

★ **Save Code Now** ask SWH to ingest your code repository
★ **Deposit** push your organization's code artifacts *with metadata* (**CodeMeta**) in the SWH Archive (SWORD protocol)
★ **Vault** retrieve source code from the SWH Archive from its SWHID (simple directory or full revision history)
★ **Search** the SWH Archive for source code artifacts (origin URL or metadata)
★ **Resolve** SWHID
★ **Explore** the SWH Archive graph

https://archive.softwareheritage.org/api/
https://deposit.softwareheritage.org/

For more details

The Software Heritage project
https://softwareheritage.org

UC6.4 description
https://www.eosc-pillar.eu/use-cases/software-source-code-preservation-reference-access

Participants

Software Heritage
CiNES Centre Informatique National de l'Enseignement Supérieur
Inría

A Pillar for EOSC

★ **EOSC SIRS report**
identify the SWH archive key role in the scholarly ecosystem

★ **FAIR Core 4 EOSC**
extend the robustness and availability of the SWH Archive for EOSC projects via a new SWH mirror operated by an EOSC partner

develop integration of SWH with more scholarly repositories; ensure proper software identification (SWHID) and long term preservation of source code used in research projects

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