



ESCAPE

European Science Cluster of Astronomy &
Particle physics ESFRI research Infrastructures

ESCAPE OSSR: An Open-Source Software Repository

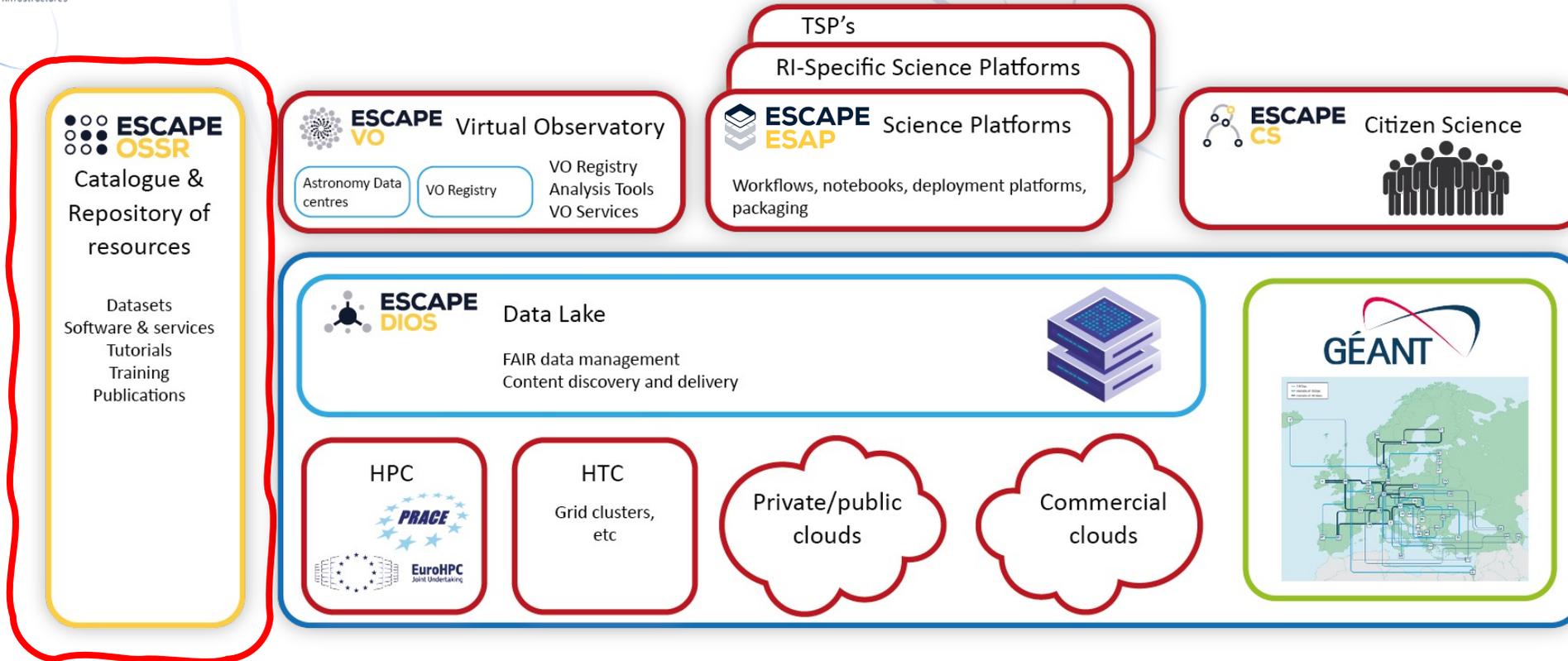
Kay GRAF

ECAP, Erlangen Centre for Astroparticle Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg

on behalf of the ESCAPE OSSR Working Group

ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement n° 824064.





OSSR was developed as part of the ESCAPE project → software community effort with repository (Astro/particle, Particle Physics and Astronomy Research Infrastructures) in the EOSC (European Open Science Cloud)

- servicing the needs of the ESF/RIS
- Since 03/2023: ESCAPE is an Open Collaboration → transition phase



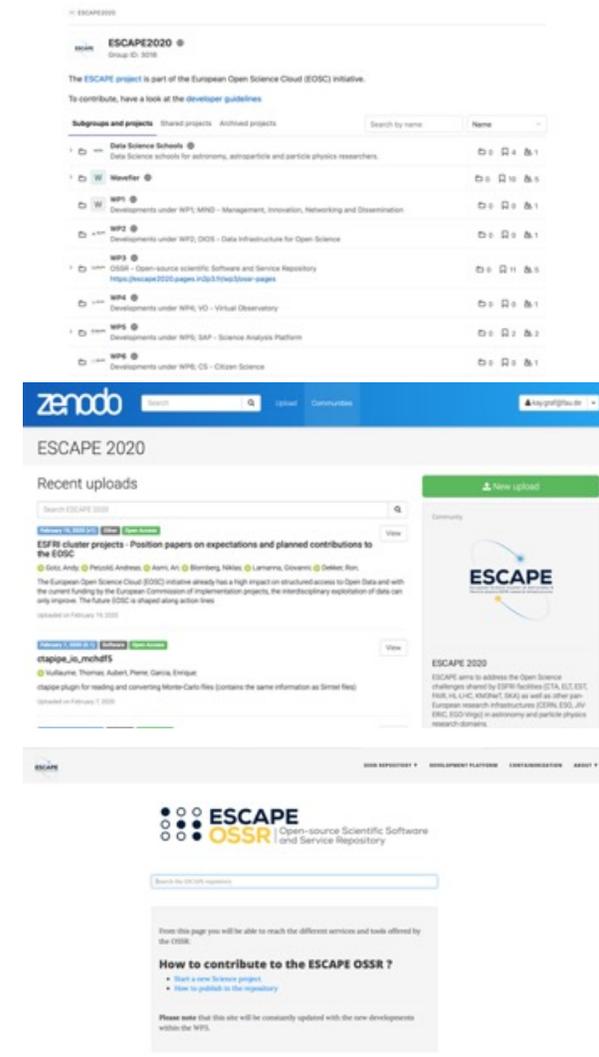
OSSR Aims and Structure

ESCAPE OSSR
 Catalogue & Repository of resources

- Datasets
- Software & services
- Tutorials
- Training
- Publications

The ESCAPE Open-source Scientific Software and Service Repository (OSSR) is a **sustainable open-access repository** to share scientific software, services to the **astro-particle-physics-related communities** and enable open science. It is built as a **curated Zenodo community** integrated with **dedicated tools** to enable a complete software life-cycle. The OSSR is fully onboarded into the **EOSC explorer**.

- Development Platform**
 - Software Development
 - Integration & Automation
- Repository**
 - Service Aggregation
 - Preservation / Archive (link to EOSC)
- Landing Page**
 - Entry point, Link Aggregation
 - New: migration to RSD planned



OSSR Aims and Structure

ESCAPE OSSR
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- Datasets
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- Publications

The ESCAPE Open-source Scientific Software and Service Repository (OSSR) is an open-access repository of scientific software for astro-particle-physics communities and science. It is built on the curated [Zenodo community](#) intended to provide a complete software ecosystem. OSSR is fully onboarded into the [EOSC explorer](#).

(Open) Software is an integral part of research and needs to be treated as such

Development Platform

- Software Development
- Integration & ...

...ive

- New: migration to RSD planned

The screenshot shows the ESCAPE OSSR website interface. At the top, it says 'ESCAPE2020' and 'Group ID: 5018'. Below that, it lists 'Subgroups and projects' with a search bar and a table of projects including 'Data Science Schools', 'Maverick', 'WPI', 'WPI2', 'WPI3', 'WPI4', 'WPI5', and 'WPI6'. The bottom part of the screenshot shows 'Recent uploads' with a search bar and a list of recent uploads, including 'ESFRI cluster projects - Position papers on expectations and planned contributions to the EOSC' and 'stapple_io_mchd5'.





48 results found

Sort by **December 11, 2023 (0.11.3)** **Software** **Open****MOC Lib Rust, MOCCLi, MOCWasm and MOCSet**Pineau, Francois-Xavier ; Baumann, Matthieu

Rust implementation of the IVOA MOC standard (MOC Lib Rust); associated command line tool (MOCCLi) and Javascript/WebAssembly wrapper to manipulate MOCs in Web Browsers (MOCWasm).

Uploaded on December 20, 2023

6 more versions exist for this record

 184  29**December 4, 2023 (v0.13.1)** **Software** **Open****cds-astro/mocpy: Release v0.13.1**

Matthieu Baumann; Manon Marchand; François-Xavier Pineau; and 6 others

What's Changed Mostly maintenance to support astropy 6.0 and python 3.12 while maintaining support for python 3.8 These points have changed internal behaviour, or documentation: Add missing return statement in private abstract class AbstractMOC in <https://github.com/cds-astro/mocpy/pull/112> The deprecated method write now calls save intern...

Uploaded on December 4, 2023

5 more versions exist for this record

 158  17**December 4, 2023 (v2.0.0)** **Software** **Open****eossr**

Enrique Garcia; Thomas Vuillaume

Zenodo used as backend:

- FAIR centered
- long-term archive
- software citability (DOI)
- widely accepted and used
- integrates with other services (aggregators)
- community management

⇒ [escape2020](#) community



- Software metadata are the implementation of FAIR principles
 - Findable, Interoperable
 - They should be part of the software and not defined or retained by an external service



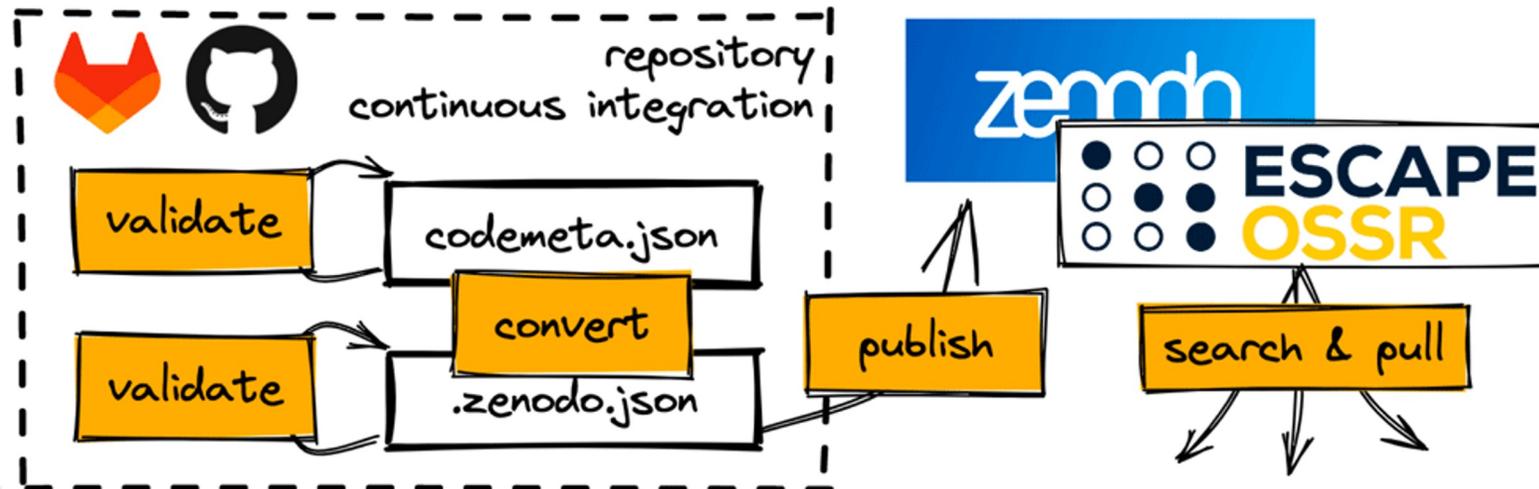
OSSR uses CodeMeta

- Universal metadata schema to describe software
- Not limited or linked to a specific service
- Increasing adoption
- Integration with other services

⇒ A codemeta.json file with a number of required keys is mandatory to submit software to the OSSR



- The eOSSR is the OSSR Python library
- Connects to Zenodo API to handle:
 - records: search, download, upload, publish, submit...
 - communities: list records, list and handle submissions
- Handles OSSR metadata:
 - Defines required one
 - Converts from CodeMeta to Zenodo schema
 - Validates codemeta.json file



Online tools: metadata generator, converter & validator

Validate and convert your metadata



This notebook will help you validate your metadata for an upload to the ESCAPE OSSR.

To do so, upload your codemeta metadata, either using an URL pointing to the `codemeta.json` file, uploading a `codemeta.json` file or copying the metadata in the text box below.

Note that you can generate your ESCAPE codemeta file using the online generator: <https://escape2020.pages.in2p3.fr/wp3/codemeta-generator/>

Load codemeta from a `json` file

Upload (0)

Load codemeta from a `Zenodo record ID`

Record ID:

Load

Load codemeta from an `URL`

URL:

Load

codemeta:

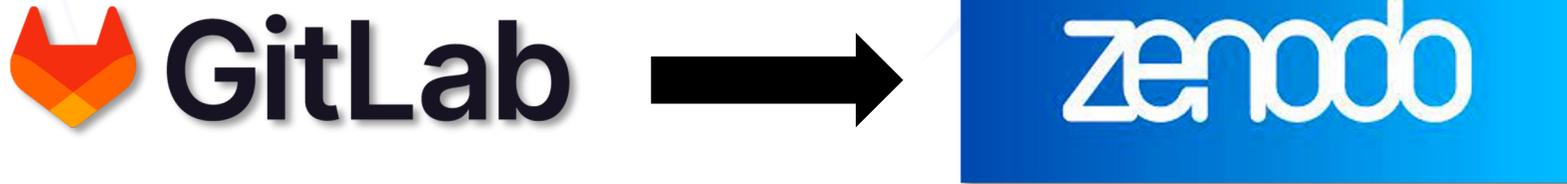
ESCAPE OSSR CodeMeta generator

This tool helps you create a CodeMeta.json file for your software. Note however that it is not exhaustive and other fields can be manually added in your file following the [CodeMeta schema](#). Most fields are optional. Mandatory fields will be highlighted when generating CodeMeta.

<p>The software itself</p> <p>Name <input type="text" value="My Software"/> <small>the software title</small></p> <p>Description <input type="text" value="My Software computes ephemerides and orbit propagation. It has been developed from early '80."/></p> <p>Documentation or readme <input type="text" value="https://online-documentation.org"/></p> <p>Creation date <input type="text" value="YYYY-MM-DD"/></p> <p>First release date <input type="text" value="YYYY-MM-DD"/></p> <p>License <input #"="" type="text" value="from SPDX license list"/></p>		<p>Discoverability and citation</p> <p>Unique identifier <input type="text" value="10.151.xxxxx"/> <small>such as ISBNs, GTIN codes, UUIDs etc. http://schema.org/Identifier</small></p> <p>Application category <input type="text" value="Astronomy"/></p> <p>Keywords <input type="text" value="Projects: CTA, EGO-Virgo, ELT, EST, FAIR, HL-LHC, KM3Net, LSST, LOFAR, SKA; Content: Astronomy, Astroparticle physics, Particle physics"/></p> <p>Keywords <input type="text"/></p> <p>Funding <input type="text" value="ESCAPE 824064"/> <small>grant funding software development</small></p> <p>Funder <input type="text" value="European Union's Horizon 2020 research and innovation programme"/> <small>organization funding software development</small></p> <p><small>Authors and contributors can be added below</small></p>	
<p>Development community / tools</p> <p>Code repository <input type="text" value="git+https://github.com/You/RepoName.git"/></p> <p>Continuous integration <input type="text" value="https://travis-ci.org/You/RepoName"/></p> <p>Issue tracker <input type="text" value="https://github.com/You/RepoName/issues"/></p> <p>Related links <input type="text"/></p>		<p>Run-time environment</p> <p>Programming Language <input type="text" value="C#, Java, Python 3"/></p> <p>Runtime Platform <input type="text" value=".NET, JVM"/></p> <p>Operating System <input type="text" value="Android 1.6, Linux, Windows, macOS"/></p> <p>Other software requirements <input type="text" value="Python 3.4"/> <small>https://github.com/psf/requests</small></p>	
		<p>Current version of the software</p> <p>Version number <input type="text" value="1.0.0"/></p> <p>Release date <input type="text" value="YYYY-MM-DD"/></p> <p>Download URL <input type="text" value="https://example.org/MySoftware.tar.gz"/></p> <p>Release notes <input type="text" value="Change log: this and that; Bugfixes: that and this."/></p>	

- Help software developers to provide valid and complete metadata
- Get that first working version of codemeta.json (adapted from codemeta generator)
- Test things out (gitlab pages based)

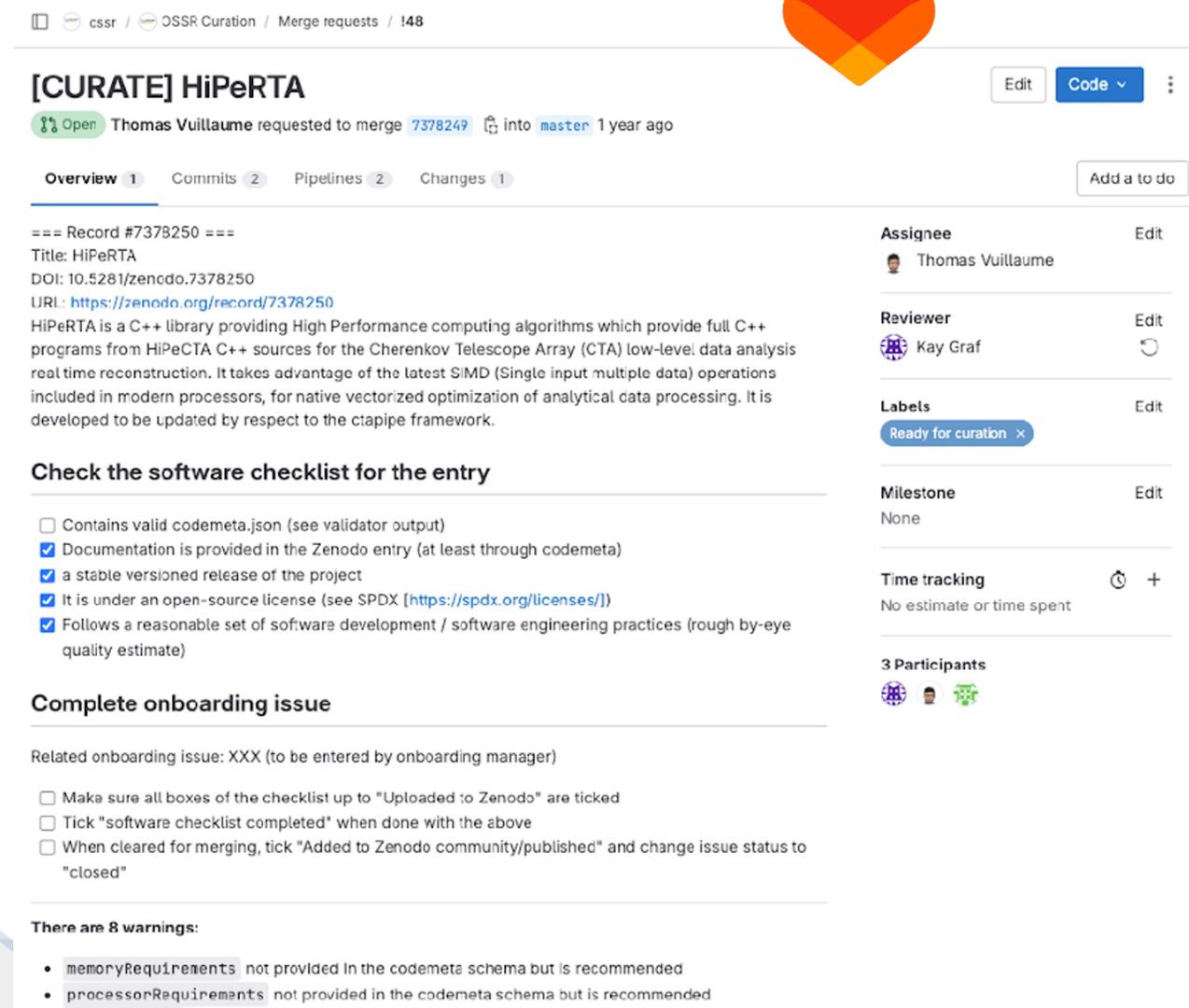




- Zenodo has an efficient GitHub integration, but no gitlab integration
 - Many ESFRIs use their own Gitlab instance
- ⇒ We provide a simple gitlab-ci snippet
- to publish your software to Zenodo / OSSR, e.g. when making a release in gitlab
 - using metadata provided in codemeta.json



- The OSSR is a curated software repository
 - implementation of the FAIR principles
 - good code practices
 - software quality
 - do not review scientific results  science paper
- Curation happens in a dedicated gitlab repository
 - completely open
 - automated checks
 - discussion between reviewers and providers
- Curation provides
 - Trust in the repository and provided content
 - Recognition for software providers



cssr / OSSR Curation / Merge requests / 148

[CURATE] HiPeRTA

Open Thomas Vuillaume requested to merge 7378249 into master 1 year ago

Overview 1 Commits 2 Pipelines 2 Changes 1 Add a to do

=== Record #7378250 ===
 Title: HiPeRTA
 DOI: 10.5281/zenodo.7378250
 URL: <https://zenodo.org/record/7378250>
 HiPeRTA is a C++ library providing High Performance computing algorithms which provide full C++ programs from HiPeCTA C++ sources for the Cherenkov Telescope Array (CTA) low-level data analysis real time reconstruction. It takes advantage of the latest SIMD (Single input multiple data) operations included in modern processors, for native vectorized optimization of analytical data processing. It is developed to be updated by respect to the ctapipe framework.

Check the software checklist for the entry

- Contains valid codemeta.json (see validator output)
- Documentation is provided in the Zenodo entry (at least through codemeta)
- a stable versioned release of the project
- It is under an open-source license (see SPDX [<https://spdx.org/licenses/>])
- Follows a reasonable set of software development / software engineering practices (rough by-eye quality estimate)

Complete onboarding issue

Related onboarding issue: XXX (to be entered by onboarding manager)

- Make sure all boxes of the checklist up to "Uploaded to Zenodo" are ticked
- Tick "software checklist completed" when done with the above
- When cleared for merging, tick "Added to Zenodo community/published" and change issue status to "closed"

There are 8 warnings:

- memoryRequirements not provided in the codemeta schema but is recommended
- processorRequirements not provided in the codemeta schema but is recommended

Assignee: Thomas Vuillaume (Edit)

Reviewer: Kay Graf (Edit)

Labels: Ready for curation (Edit)

Milestone: None (Edit)

Time tracking: No estimate or time spent (+)

3 Participants

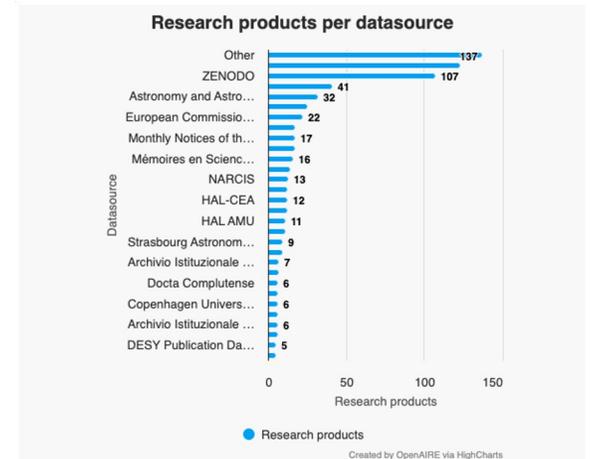
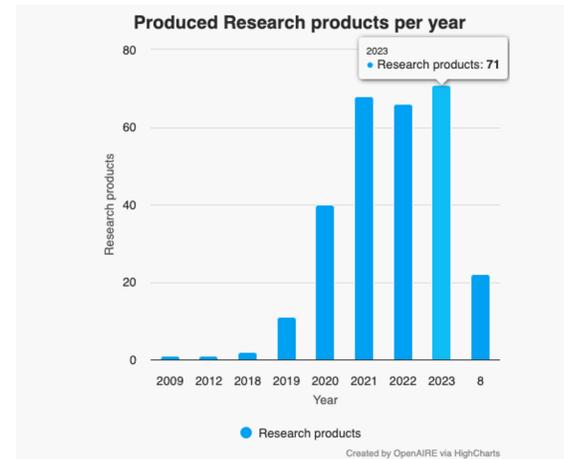
Integration with other services



- connects to other services
- analyse data
- search and pull software from the OSSR

- EOSC integration
- Provides integrated statistics
- Connects with other data sources

- fully integrated with DMA ST2, as sub-community via GSI group, also including the relevant entries to <https://helmholtz.software/>





Welcome to the ESCAPE OSSR!

[Browse the OSSR content.](#)

What is it?

The ESCAPE Open-source Scientific Software and Service Repository (OSSR) is a sustainable open-access repository to share scientific software, services and datasets to the astro-particle-physics-related communities and enable open science. It is built as a curated [Zenodo community](#) integrated with several tools to enable a complete software life-cycle. The ESCAPE Zenodo community welcomes entries that support the software and service projects in the OSSR such as user-support documentation, tutorials, presentations and training activities. It also encourages the archival of documents and material that disseminate and support the goals of ESCAPE.

How to contribute to the ESCAPE OSSR?

You can onboard your project right now - [see here](#) how.

One single entry point

<http://purl.org/escape/ossr>

- Find all the information
- Search the OSSR
- As frontpage:
move to [RSD](#) under discussion
- Onboarding instructions



The OSSR galaxy

The collage features several key components:

- ESCAPE OSSR Website:** A screenshot of the main website with the text "Welcome to the ESCAPE OSSR!" and "What is it? The ESCAPE Open-source Scientific Software and Service Repository (OSSR) is a sustainable open-access repository to share scientific software, services and datasets."
- CodeMeta Generator:** A screenshot of the "ESCAPE OSSR CodeMeta generator" tool, showing a form for validating and converting metadata.
- CodeMeta Icon:** A simple icon representing CodeMeta, consisting of a document with code symbols.
- Zenodo Project Page:** A screenshot of the Zenodo project page for "ESCAPE OSSR", showing the repository URL and a "New upload" button.
- ESCAPE ESAP and OpenAIRE Logos:** Logos for ESCAPE ESAP and OpenAIRE EXPLORE.
- Curation Page:** A screenshot of a curation checklist for a software entry, titled "[CURATE] HIPPARA". It includes sections for "Check the software checklist for the entry" and "Complete software entry issues".
- GitHub and GitLab Logos:** The logos for GitHub and GitLab, indicating the supported version control systems.
- Workflow Diagram:** A diagram showing the workflow from "validate" to "publish" and "search & pull". It includes steps like "validate", "codemeta.json", "convert", "zenodo.json", "publish", and "search & pull". It also mentions "continuous integration" and "repository".





ESCAPE OSSR | Open-source Scientific Software and Service Repository

Welcome to the ESCAPE OSSR!

Validate and convert your metadata

ESCAPE OSSR CodeMeta generator

zenodo ESCAPE OSSR

GitHub **GitLab**

eOSSR repository

CodeMeta

Curation

[CURATE] HIPPARA

validate **codemeta.json** **publish** **search & pull**



OSSR workshops,
collaboration meetings
and Software Schools



Outreach to Users



What is the OSSR?

- The Open Software and Service Repository is one building stone emerging from the ESCAPE project in EOSC (European Open Science Cloud)
- Supported through the ESCAPE collaboration
- Catalogue of software repositories or collections based on entries in a Zenodo community
- OSSR group to curate and develop repository & foster community
- Review performed on all entries



Why should you share your software?

Visibility

- See your work alongside other projects from the same community
- Be citeable through Zenodo and findable through multiple integrated software platforms

Recognition

- Go through our quality review and receive the OSSR badge
- Increase citations through better findability
- Long-term archival of your software

Community

- Be invited to the community exchange during the OSSR collaboration meetings
- Present your project and benefit from the experience of colleagues from the field

Future integration

- Benefit from future developments to enable science platform integration
- Keep in touch with the latest developments in ESCAPE



What to share - examples

Community relevant software



[DOI: 10.5281/zenodo.8033275](https://doi.org/10.5281/zenodo.8033275)

Analysis repositories
SKA Science Data Challenge



[DOI: 10.5281/zenodo.5526844](https://doi.org/10.5281/zenodo.5526844)

Service and software collections

An astronomical HiPS visualizer in the browser



[DOI: 10.5281/zenodo.8243056](https://doi.org/10.5281/zenodo.8243056)



new types

*If it makes
sense – add it!*



Add metadata

- Create a codemeta.json with required info
- Make sure to add good documentation

Publish on Zenodo

- Push your work to Zenodo and request access to the ESCAPE community

Get your review done

- Get all the quality checkmarks and get added
- Add your OSSR badge to your project

Get involved

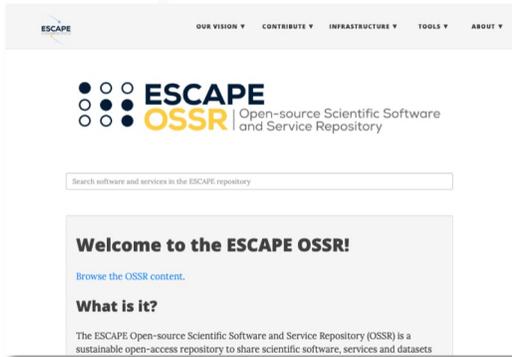
- Join the OSSR community meetings
- Share your software, create new opportunities!

Relevant Links

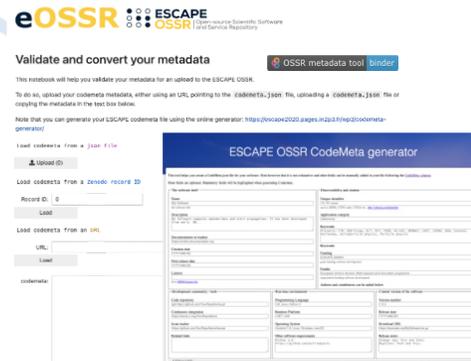
Onboarding instructions: <https://escape-ossr.gitlab.io/ossr-pages/page/contribute/onboarding/>

Zenodo Community: <https://zenodo.org/communities/escape2020>





OSSR entry point
See our requirements
Contact us if needed



Produce codemeta.json.
Check its validity.

How to onboard

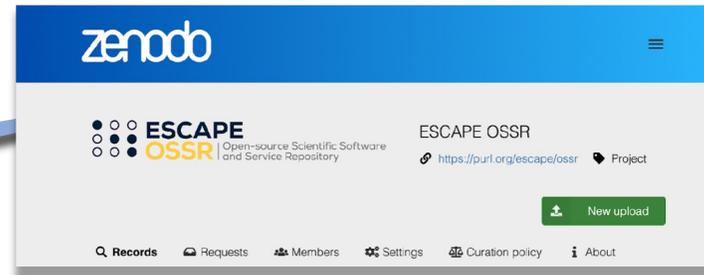


CodeMeta

Add codemeta.json to your repo.

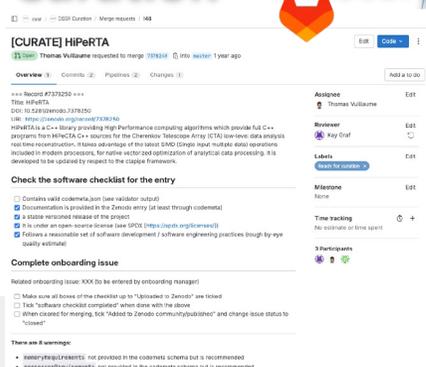


Acceptation in OSSR
Findable and Accessible
by other services



Record gets curated

Curation

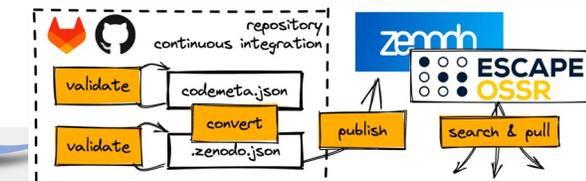


GitHub/Gitlab to Zenodo
Request to integrate
escape2020 community



Keep codemeta.json updated
CI/CD validates codemeta.json in time

eOSSR



Funded by the European Union's
Horizon 2020 - Grant N° 824064



⇒ process is automatic for all following revisions / releases



Conclusion and future

- OSSR as community software effort
- The [OSSR](#) is accepting quality software and analysis code from astro & particle physics communities
 - Set of tools to help you in the software lifecycle
 - Integration with services
 - Curation to build trust and recognition
 - Find our open letter at <https://open-research-europe.ec.europa.eu/articles/3-46>
- Strong interaction with DMA ST2 (adopted catalogue solution)
- technology decisions: thin layer over existing services
- EVERSE EU project starting in March 2024
 - Establish an European Virtual Institute for Research Software
 - Keep improving software quality in research
 - Exchanges with other science clusters

<https://purl.org/escape/ossr>





ESCAPE

European Science Cluster of Astronomy &
Particle physics ESFRI research Infrastructures

OSSR started as EOSC Project and became an
Open Collaboration lately
Many overlapping topics with national projects/RIs
Thank you for your attention!

