EOSC-hub

EOSC-hub contribution to the EOSC Rules of Participation Consultation

Abstract

This document summarizes the common requirements and recommendations that will be applied to the services in the European Open Science Cloud EOSC-hub catalogue to be considered production, be exposed to the users, and to be integrated with the EOSC-hub operations infrastructure.

This document is an extract of the EOSC-hub Deliverable D4.1: “Operational requirements for the services in the EOSC catalogue”: https://documents.egi.eu/document/3342

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1. Rules of Participation for service providers

This document outlines the EOSC-hub input to the Rules of Participation consultation for service providers wishing to join the European Open Science Cloud Service Catalogue. The operational requirements and recommendations defined in this document will be applied to the services and service providers from e-Infrastructures and research infrastructures that collaborate with the EOSC-hub project

The focus of the document is on Rules of Participation for Service Providers, both existing and potential future providers, wishing to participate in the European Open Science Cloud (EOSC). It should be noted that the operational requirements are only one aspect of the more general Rules of Participation.

Given the past experience of the EOSC-hub partners and the project's early findings, EOSC-hub foresees the need to support different level of service management integration. Services part of the **federating core**[1], will require a higher level of integration.

This document defines three levels of operational integration with the Hub depending on the maturity level of the Service Management Framework in place[2]:

- **High**: the service is operated according to the EOSC service management system. The service provider actively participates to the Hub Operations Coordination.
- **Medium**: aimed at services run with a more mature Service Management Framework
- **Low**: aimed at services run with a less mature Service Management Framework

Each level of integration will have its own set of proposed operation requirements.

We propose to divide services in two main classes:

- **Access enabling services**, needed to operate the EOSC-hub itself (internal catalogue), as such, these services may not be 'ordered' by users; and
- **Research enabling services**, i.e. user facing services offered to users and research communities by means of a Marketplace (external catalogue). These can be further divided in
    - **common services**, which can be re-used by other services (e.g. compute, storage and data management services), and
    - **other researchers enabling services** (e.g. a scientific application offered by a Research Infrastructure).

[1] According to Commission Staff working Document "implementation Roadmap for the European Open Science Cloud: "the EOSC federating core is understood to be constituted by EOSC shared resources and by a compliance framework including notably the Rules of participation" and "the Work Programme foresees developing the initial shared resources around the EOSC-hub project, the EOSC Portal and a catalogue of data infrastructures and services."

[2] http://fitsm.itemo.org/maturity-capability-assessment-tool/

Each of the service classes will have a designated minimum compliance level, which can be translated into a set of operational requirements:

- **Access enabling services (internal catalogue):** must satisfy the requirements of the level of integration *High*. These services are delivered by EOSC-hub using the Service Management System (SMS) developed as part of the project, and include services like for example the Marketplace, the EOSC-hub Helpdesk and Authentication and Authorization Infrastructure (AAI) services
- **Research-enabling services (external catalogue):**
    - **Common services:** must satisfy the requirements of the level of integration *Medium*. For such services the SMS will be run by the organization delivering the service, using their own operational processes and procedures. Such services will need to meet a number of operational requirements in order to enter the Service Catalogue.
    - **Other research enabling services:** must satisfy the requirements of the level of integration *Low*.

Research-enabling services may wish to benefit from the single access hub and the supporting services provided by the EOSC-hub project for the benefit of their users. In joining the EOSC-hub, services in this category may be discovered along with other services in a consistent fashion through the Marketplace, and users may be offered other benefits such as the EOSC-hub helpdesk, a standard access workflow and other user support mechanisms. The entry bar for external services to join the Marketplace is the easiest to achieve of all levels of service integration. While there are some concrete operational requirements, in many cases only recommendations exist driven from best practice deriving from Service Management standard practice.

Examples of such services may be domain-specific services or other services run by an SME or not-for-profit organization that may be of interest to others. Any services may be considered: from generic data to computing services to bespoke services such as offering virtual research environments. EOSC-hub offers the possibility of greater visibility of such services within the EOSC-hub Marketplace.

2. Service Categories

This section maps the different EOSC-hub classes of services to three operation levels of integration. The outcome of this mapping will determine the minimal operational requirements of the service.

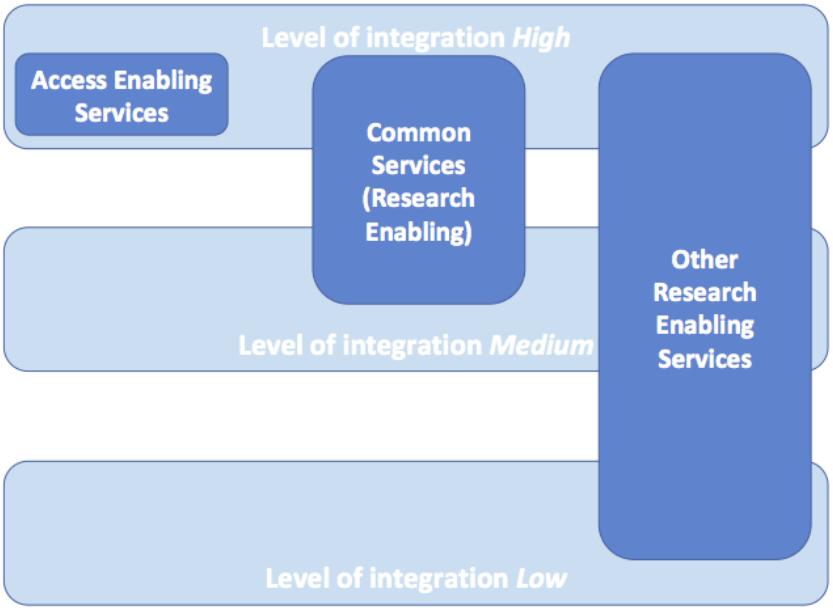


Figure 1. Possible operational levels of integration according to the classes of services.

For more information on the proposed EOSC service management system processes and the related requirements, please refer to EOSC-hub deliverable D4.1 "Operational requirements for the services in the catalogue"[3].

[3] https://documents.egi.eu/document/3342

3. Overview of Operational Requirements and Recommendations

This section provides a quick overview and comparison of the operational requirements and recommendations for the different types of services[4].

Category	Access Enabling services	Common services	Research enabling services
Catalogue	**Internal catalogue**	**External catalogue**	**External catalogue**
Minimal level of integration	**High**	**Middle**	**Low**
Operational Coordination **(section 3.1)**	SHALL: • Nominate a person running the service who is signed up to the Operations Coordination mailing list • Participate in the Operations Management Board • Ensure that operations is overseen by EOSC-hub governance • Be fully compliant with policies defined in EOSC-hub SMS (section 4.1)	SHALL: • Nominate a person running the service who is signed up to the Operations Coordination mailing list • Participate in the Operations Management Board (section 5.1)	SHALL: • Nominate a person running the service who is signed up to the Operations Coordination mailing list • Participate in the Operations Management Board (section 6.1)
Service Portfolio Management **(section 3.2)**	SHALL: • Follow the EOSC-hub SPM process (section 4.2)	SHALL: • Implement SPM process • Provide necessary information (section 5.2)	SHALL: • Provide necessary information (section 6.2)

[4] If there are no explicit requirements for entry into the catalogue, n/a is indicated for not applicable. Section numbers refer to the D4.1 Deliverable, to which the reader should refer for more information.

Service Level Management **(section 3.3)**	SHALL: • Follow the EOSC-hub SLM process • Agree on an OLA with EOSC-hub (section 4.3)	SHALL • Implement SLM process • Agree on an OLA with EOSC-hub • Provide information needed to establish SLAs and commit to their fulfilment (section 5.3)	SHALL: • Agree on an OLA with EOSC-hub • Provide information needed to establish SLAs and commit to their fulfilment SHOULD • Establish internally OLAs (section 6.3)
Customer Relationship Management **(section 3.4)**	SHALL: • Follow and support the EOSC-hub CRM process (section 4.4)	SHALL • Implement a CRM process • Support the EOSC-hub CRM process (section 5.4)	SHOULD • Implement and follow a CRM process SHALL: • Support the EOSC-hub CRM process (section 6.4)
Supplier Relationship Management **(section 3.5)**	SHALL: • Follow the EOSC-hub SUPPM process (section 4.5)	SHALL: • Implement and follow a SUPPM process (section 5.5)	SHOULD: • Implement and follow a SUPPM process (section 6.5)
Configuration Management **(section 3.6)**	SHALL: • Follow the EOSC-hub CONFM process (section 4.6)	SHALL: • Implement and follow a CONFM process (section 5.6)	SHOULD: • Implement and follow a CONFM process (section 6.6)
Change Management **(section 3.7)**	SHALL: • Follow the EOSC-hub CHM process (section 4.7)	SHALL: • Implement and follow a CHM process (section 5.7)	SHOULD: • Implement and follow a CHM process • Maintain a schedule of change and communicate to EOSC-hub in advance of changes

			(section 6.7)
Release and Deployment Management **(section 3.8)**	SHALL: • Follow the EOSC-hub RDM process (section 4.8)	SHALL: • Implement and follow a RDM process • Announce planned maintenance in advance • Announce new releases in advance (section 5.8)	SHALL: • Notify users before new releases SHOULD: • Plan, validate and document releases (section 6.8)
Service Availability and Continuity Management **(section 3.9)**	SHALL: • Follow the EOSC-hub SACM process (section 4.9)	SHALL: • Implement and follow a SACM process • Allow the monitoring of the services • Periodically perform risk assessment and management exercises (section 5.9)	SHALL: • Allow the monitoring of the services SHOULD: • Periodically perform risk assessment and management exercises (section 6.9)
Capacity Management **(section 3.10)**	SHALL: • Follow the EOSC-hub CAPM process (section 4.10)	SHALL: • Implement and follow a CAPM process • Define and manage Capacity management process (section 5.10)	SHOULD: • Manage capacity necessary to deliver services (section 6.10)
Information Security Management **(section 3.11)**	SHALL: • Follow the EOSC-hub ISM process (section 4.11)	SHALL: • Implement and follow an ISM process • Abide by EOSC-hub Security Policies and Procedures (section 5.11)	SHALL: • Abide by EOSC-hub Security Policies and Procedures (section 6.11)

Incident and Service Request Management **(section 3.12)**	SHALL: • Follow the EOSC-hub ISRM process (section 4.12)	SHALL: • Implement and follow an ISRM process • Be aware of guidelines for user support • Provide a support via EOSC-hub helpdesk (section 5.12)	SHOULD: • Be aware of guidelines for user support • Provide a support via EOSC-hub helpdesk (section 6.12)
Problem Management **(section 3.13)**	SHALL: • Follow the EOSC-hub PM process (section 4.13)	SHALL: • Implement and follow a PM process (section 5.13)	SHOULD: • Maintain a database with known errors linked to ISRM (section 6.13)

4. TRL Maturity Levels

Technology Readiness Level (TRL) is a gauge for the maturity of a technology. Originally developed for the space industry by NASA, it became later adopted by various departments of defence around the world and by others. Its use within the EU was first recommended by the High Level Group of Key Enabling Technologies (HLG-KET) final report in 2011 and it was subsequently used in H2020 funding programs.

For use within the context of operational service delivery, TRL has its limitations as it is usually used to describe the maturity of underlying technologies rather than the delivery of them in the form of a service to end users. In addition to this, an end service may be the union of multiple sub-components, each based on various technologies with differing levels of maturity. Nevertheless, TRL is a widely used and easily understandable method that was included in the EOSC-hub project proposal.

The basic explanations of TRL may be seen from the definitions from the European Commission in preparation for its WP2014-2015 program[5]:

TRL 1	Basic principles observed
TRL 2	Technology concept formulated
TRL 3	Experimental proof of concept
TRL 4	Technology validated in lab
TRL 5	Technology validated in relevant environment
TRL 6	Technology demonstrated in relevant environment
TRL 7	System prototype demonstration in operational environment
TRL 8	System complete and qualified
TRL 9	Actual system proven in operational environment

Services at TRL 8 are considered within EOSC-hub – and EOSC in the future – to be at a Production level, where it is made clear to users which functionalities are present and which are not, and users' reasonable expectations of stability are met. Such services will have passed through the previous development states of proof-of-concept, pilot and pre-production, and will have successfully proven to users that the services are mature and fit-for-purpose for their target communities.

We recommend that in EOSC TRL8 remains the minimal requirement to include new services in the catalogue. The service assessment will include the evaluation of both operational and technical

[5] https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

aspects. Technical requirements will be defined by the EOSC-hub deliverable D10.3 expected to be released on September 2018. Once both operational and technical requirements will be defined, a formal procedure to assess the service TRL will be defined as part of the process to onboard services in the catalogue.

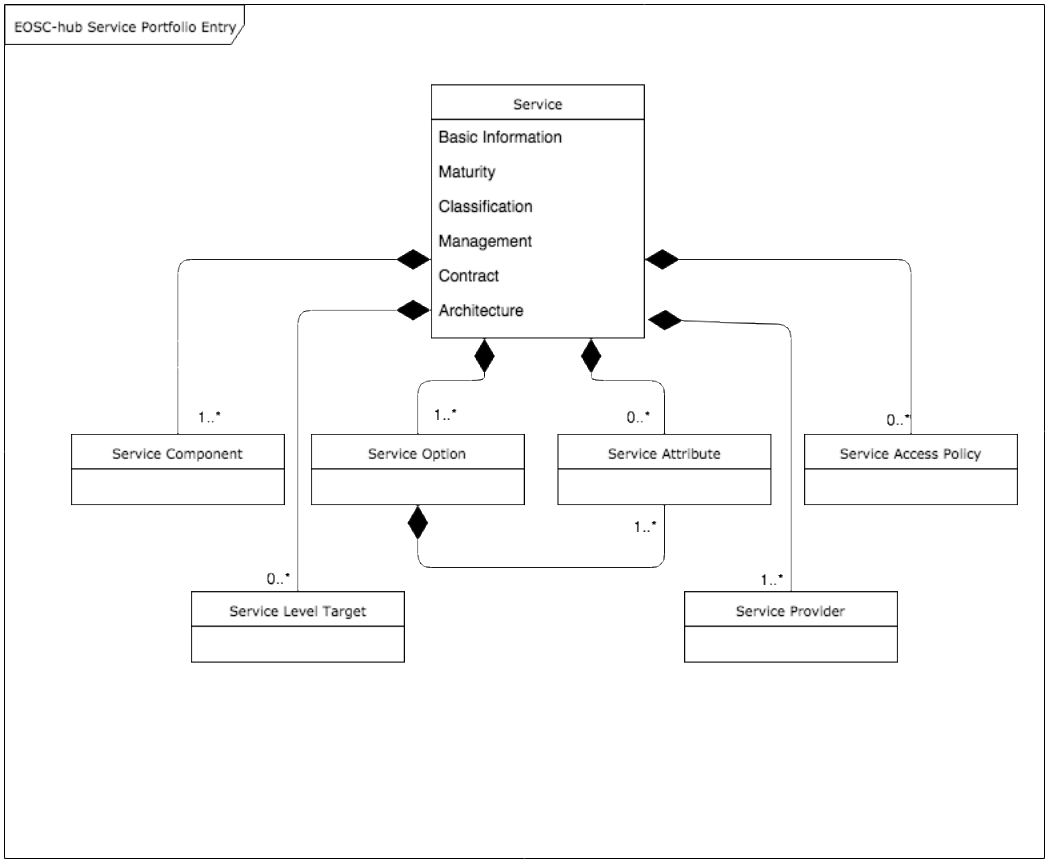
5. Service Portfolio Entry Template

The EOSC-hub is developing a service portfolio entry template that supports the management of services that join the service portfolios. This is compatible with the eInfraCentral template[6] and proposes various extensions to cope with a wider scope of management functions that need to be supported.

The figure below provides a high-level view of the current draft template with the various categories of information that will be needed. In particular:

- Basic information: to describe the service (e.g. service name, logo, description, value)
- Maturity: to describe the maturity of the service (e.g. TRL, lifecycle phase)
- Classification: to map service in various categories so to simplify the discovery via taxonomies
- Management: to describe aspects related that are needed when managing the service operationally (e.g. service owner, support contact, service provider helpdesk)
- Contract: to describe the contractual aspects (such as terms of use, SLA and list of access policies)
- Architecture: to describe the high-level view of the architecture of the service
- Service access policies: to describe a specific access policy (e.g. in terms of the access mode, payment options, conditions)
- Service option and service attributes: to describe the choices that a customer can make at the time of ordering the service so to render them in the marketplace
- Service level target: to describe the committed performance targets when delivering the service
- Service component: to describe the building elements of the service

[6] http://einfracentral.eu/basic-page/e-infrastructure-catalogue-alignment



6. Conclusions

This document has sought to give EOSC-hub input to the HLEG open consultation on EOSC Rules of Participation, focusing on rules for service providers.

We propose an initial set of operational requirements, as they are understood at this point of the project, for services wishing to join the EOSC service catalogue. It has attempted to clarify three different operational requirements of increasing levels. Service providers can choose the level of integration that best fits with their needs but a minimum level to be compliant with has been defined for the three following classes of services:

- Access enabling services: compliant with the level of integration *High*;
- Common services (a sub-set of Research enabling services that can be re-used by other services): compliant with the level of integration *Medium*;
- Other research enabling services (not common services): compliant with the level of integration *Low*.

It is hoped that prospective service providers will be able to obtain an idea of what will be required of them to join the catalogue.

Finally, it should be noted that these operational requirements will be especially useful for services and resources supporting multidisciplinary science and open for transnational access.