OPERAS-P

OPEN SCHOLARLY COMMUNICATION IN THE EUROPEAN RESEARCH AREA FOR SSH - PREPARATION

WP4 - Transnational access to publication services

Protocol for the integration of OPERAS RI services into EOSC

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DRAFT VERSION

Deliverable 4.5
Protocol for the integration of OPERAS RI services into EOSC

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Contents

Executive summary

This deliverable is a protocol for the integration of OPERAS services into the EOSC Marketplace in order to make them available to the european researchers. By finding OPERAS services via the EOSC Marketplace, it allows OPERAS to reach a broader user base that extends beyond the existing research community.

I.   OPERAS Research Infrastructure Services

OPERAS Research Infrastructure already proposes services, those services are available online for anyone to use. Some restrictions apply depending on the service and users' needs, but the services are available to researchers as well as to other types of stakeholders. During the OPERAS-P project, the different partners of the task managed to publish a first OPERAS service on the Marketplace, the "OPERAS Certification (DOAB)".

II.   EOSC Marketplace

The EOSC Marketplace, https://marketplace.eosc-portal.eu/, is developed by the EOSC-hub project[1], where researchers can discover, order and access services and resources that conform to community best-practices and standards. Through the EOSC Marketplace, researchers can also obtain assistance from international technical teams on the most suitable solutions to address their digital needs.

This summaries both the community's reaching goals and the standards applied to the EOSC Marketplace and the services it proposes.

The overall management system of the EOSC Marketplace for Service Provides has been established thanks to the EOSC-Hub project, as well as eInfraCentral[2]. The EOSC-Hub team describes also the inclusion process and the overall operation framework of the EOSC in their newly released publication[3].

In order to have quality services available on the Marketplace, it needs to be sufficiently advanced for providing good services to the community, therefore there are some minimal requirements to be eligible to participate in the EOSC Marketplace. Those will be described in the following chapters, but it is worth mentioning already at this point that only services that are at least TRL7 (Technical Readiness Level 7)[4] can become eligible, meaning that the service must at least be usable by its users in a beta version.

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[1] EOSC-hub, https://www.eosc-hub.eu/, Horizon 2020 project (2018-2020), brings together multiple service providers to create the Hub: a single contact point for European researchers and innovators to discover, access, use and reuse a broad spectrum of resources for advanced data-driven research.
[2] https://www.einfracentral.eu/
[3] Sipos, Gergely. (2020, May 14). EOSC-hub Integration handbook for service providers (Version 14/May/2020). Zenodo. http://doi.org/10.5281/zenodo.3826907
[4] See Annex EOSC-Hub SDTv1.3.0, on the "TRL Definitions" page.

III.   Protocol as a step by step checklist

Those are the steps to do in order to be able to provide an OPERAS service into the EOSC Marketplace. Of course, one of those steps is interaction with the EOSC Onboarding team in which they will decide if yes or no the service is mature enough and qualifies for the Marketplace.

A. Service descriptions

Even before starting with providing the information to EOSC, there needs to be some ground work done first. This is very likely already done for most of the information displayed below, but some might be missing, and this is the right time to think about them.

1.   Name of the service

The service obviously needs a name, this name should reflect that it is an OPERAS service. For example, our Certification Service is called "OPERAS Certification (DOAB)".

2.   Description of the service

A comprehensive description of the service is also necessary, it will be what users will be able to read on the EOSC Marketplace, so describe what the service does and for whom it is mostly aimed at.

3.   Service Provider

As easy as it may sound, this can happen to be non trivial as only 1 entity can appear in the EOSC Marketplace. Some of OPERAS services are and will be hosted and operated by multiple partners, and this information is indeed important for all parties involved in the services. In order to circumvent this, EOSC introduced the possibility to have federated operators, but always with a main operator. OPERAS is willing to go further and arrange, thanks to "collaboration agreements", a cooperation between all partners as one and display as such as the Service Provider.

4.   Status of the service

As previously noted, the service should be at a beta version minimum. If you are in a prototype version for now, note that it can still fit the TRL 7 if done in an operational environment, so can be included in the EOSC Marketplace. The beta version minimum goal, is also described by EOSC as the TRL7 and is described more in detail in the EOSC-Hub SDTv1.3.0[5]. An extra definition would be to say that the service has already been used by early adopters scientists[6].

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[5] See Annex EOSC-Hub SDTv1.3.0, on the "TRL Definitions" page.
[6] Sipos, Gergely. (2020, May 14). EOSC-hub Integration handbook for service providers (Version 14/May/2020). Zenodo. http://doi.org/10.5281/zenodo.3826907

5.   Privacy Policy page for the service

EOSC enforces the use of a privacy policy page for all services in its Marketplace. If you haven't thought of one, it is time to create one and publish it online as this is public information for the use of your service. Please refer to the policy privacy subchapter for some guidance on how to get started.

6.   User manual(s)

This information is also a mandatory step to think about for any service that is running for OPERAS. A user manual is needed, and there should be also an administration manual if the service offers an admin panel. This manual should describe what can be done and how within the service or thanks to the service.

B. Apply to become a provider

The actual step with the EOSC Team is to go to the EOSC portal, and apply to become a provider[7]. Click 'Apply Now' button, it takes you to the online application form[8]. The EOSC Onboarding team will check mainly the motivation and relevance of the proposed service. Some are very easily discarded at this step if they absolutely do not fit the European research community. If this initial check is fine, they will invite you to fill the service description using the template that they will provide.

C. Using the EOSC-Hub Service Description Template (SDT)

The EOSC Onboarding Team proposes the service providers a document template (currently a Google Spreadsheet) in order to fill out all the information they are looking for. This template is known as the Service Description Template (SDT). Some of those information are mandatory (and some are already briefly described in the previous chapter), and others are optional. Of course, as always, the more complete it is, the more useful it will be for the future users.

This template, seen in the Annex, is divided in different categories that we will go through in this chapter.

In each category, some information is asked. Since instructions are provided and are straightforward to follow, this document will not go through all the items but only the ones that might need extra information for either OPERAS services, or because the official explanation might not be sufficient and the feedback we already received from EOSC could be useful for you.

Also note that the information is not always aimed at being public on the EOSC Marketplace, some of the information is indeed for internal use by the EOSC Team to manage the services - a good example is the contact person(s), you can safely add a

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[7] https://providers.eosc-portal.eu/becomeAProvider
[8] https://providers.eosc-portal.eu/newServiceProvider

personal email address if you want since this information will not become public on the website; However, in the case of a Helpdesk email address, then the information is public, so read carefully when it comes to this.

At the time of writing[9], the SDT version in use is 1.3.0.

1. Service provider

a. Service Provider Name

As previously stated, this is aimed to be the Service Provider's name if there is only one service provider. However, if this is a federation of service providers, OPERAS can provide the legal agreements to overcome this issue in the form of a "collaboration agreement". This is a simple agreement which will include a name for all parties involved. At the date of writing, EOSC is thinking about enforcing the Service Providers to be legal entities, this is not the case yet, but might be in the future.

❏ Name of the single provider OR Name of the collaboration agreement
❏ If multiple providers, collaboration agreement signed by OPERAS and the different parties

b. Service Provider Affiliation

An important mention here, "*OPERAS Research Infrastructure*" obviously needs to be listed. However, other affiliations may also be added in this field, such as the umbrella organisation(s) of your own organisation (e.g. "CNRS, Aix-Marseille Université, EHESS, Université d'Avignon" for OpenEdition).

❏ Addition of "OPERAS Research Infrastructure" as affiliation

2. Service description

a. Service name

As stated earlier, OPERAS services should adopt an official name showing its relation with OPERAS. The example of the first OPERAS service within the EOSC Marketplace adopted the official "OPERAS Certification (DOAB)" name. A tip from the EOSC team is to keep the name short, so probably something excessive would be "The OPERAS Certification Service for Peer-Reviews of Open Access Monographs". Of course, as OPERAS services, the name will be chosen accordingly with all parties.

❏ Short enough name
❏ Relation to OPERAS is clear

b. Service description

The description of the service, as simply as possible, but including information for users to understand what they will get by using this service. The description should be well informed and contain enough information but not too much. It is a summary of the service,

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[9] May 2020

but a more complete description of the service is done in the documentation of the service itself, not in the EOSC template.

- ❏ Clear and descriptive information about the service
- ❏ Shortly point to OPERAS Research Infrastructure

c.   Service URL and Service endpoint

Those 2 fields should contain URLs, however, not the same URLs. The first one would be where to find the service and its description. The second one would be the URL for the endpoint of a service, for example an API endpoint if the service requires the use of an API.

- ❏ Service URL is mandatory, must point to the homepage of the service

d.   Geographical availability

It is very likely that the OPERAS service is available to the whole European research community, therefore, instead of choosing a country (or set of countries), please simply enter "Europe". If the service is restricted, then a list of 2 letter country code (the full ISO 3166-1 alpha-2 code is available in an extra tab of the SDT) can be used.

- ❏ Choose "Europe" or restrict to list of countries (e.g. "NL,FR,DE")

e.   Service logo

A Logo is often what users see first with the name of the service itself, therefore, it is needed here to propose a good quality image of the Logo. This Logo will be resized by the EOSC Team so it can be as big as needed and can also be provided via links to Dropbox or other file hosting services if this image is not yet publicly available.

- ❏ Logo of good quality provided via a publicly available link

f.   Target user categories

You can specify for whom your service is relevant, this information is fairly understandable by all users, so please select one of the possible answers provided. You can select multiple answers ("Researchers", "Research Community", "Business", "Research project", or "Providers"), and as a research infrastructure, chances are users are researchers, but maybe not only.

- ❏ Provide your target users

g.   Service category

Your service needs to be categorized for the EOSC Marketplace, they offer 8 different categories that are accessible on the Marketplace website. Those categories are self explanatory ("Sharing & Discovery", "Processing & Analysis", "Compute", "Storage", "Data Management", "Networking", "Training and Support", and "Security and Operations") and you can choose multiple categories if your service can apply to them.

- ❏ Select at least one relevant category

h.   Research fields

The provided list has been created by EGI from various sources (at least Frascati Field of Science and Technology (FOS) and Wikipedia List of Academic Disciplines) and you should look for the scientific fields available under "5. Social Sciences" and "6. Humanities". The exhaustive list is available directly in the SDT under the tab "Research Disciplines".

❏ Find suitable scientific fields, or select all SSH fields

i.   Service TRL

As stated in the previous chapter, you already know the status of your service, therefore you know if it is in beta or production. It therefore qualifies you as either TRL7 or TRL8. The minimum is TRL7 to have your service listed (TRL8 for orderable services). Discussion with the OPERAS Coordination Team is welcome to analyse the service status.

A good documentation created by EOSC-Hub to specify your service's TRL is available on their wiki: https://wiki.eosc-hub.eu/display/EOSC/Service+Maturity+Classification

❏ Select your TRL level

3.   Service management

a.   Service Level Agreement or Service Level Specification

Even though it is still optional, the EOSC Team is thinking about having this information public and mandatory by the end of 2020. Therefore, it is preferable that an SLA is already in action for OPERAS service. SLAs are being drafted by the OPERAS Coordination Team and will be discussed within the Special Interest Group (SIG) "Platforms and Services". A SLS is pretty much a SLA that will not be signed, but the content is the same, penalty free and short enough.

❏ Your SLA is publicly available online
❏ Link to your SLA in your application

b.   Service owner

The service owner will receive general information about the service within the EOSC Marketplace. This person is responsible for the service at a management level. Please enter the person's name and the email address for contact. It could also be a group instead of a single person, this can happen for shared responsibilities within a service. For this, try to use an email address that works as an alias that dispatches the emails to the different members.

❏ Identify the service owner(s)
❏ If necessary, create specific email address for a potential group

c.   Service support

Same as above, but applies to the support and operational activities of the service. The

person(s) behind this can answer most questions about the use of the service or potential resolution of issues.

❏ Identify the service support person(s)
❏ If necessary, create specific email address for a potential group

d. Service security

Same as above, but applies to the security aspects of the service. On a small scale service, it is understandable that support and security are operated by the same person(s).

❏ Identify the service support person(s)
❏ If necessary, create specific email address for a potential group

e. Helpdesk URL / Helpdesk email address

There are 2 fields for the Helpdesk information, but only one needs to be filled out. Either you use a ticketing system, and you can enter its URL in the first field, or you don't and you need to provide an email address for user support. This email address needs to be anonymised (e.g. service-support@operas-eu.org).

❏ If available, provide your ticketing system URL
❏ If not, provide a generic email address (create it if necessary)

f. Service user manual

Already discussed earlier, a service needs documentation, and a part of this documentation is the user manual. This user manual is public and available to all to use. This manual should describe in detail how to use the service.

❏ The user manual is publicly available online

g. Service terms of use / Acceptable use policy / Terms and Conditions

In its template, EOSC-Hub proposes to use the WISE Baseline Acceptable Use Policy for the AARC project. If you don't have one already, then use this one. Those are very basic but can be enough for services, however they let you add new items in the AUP if you feel something is missing related to your service. OPERAS Coordination team can also be of help for this subject.

❏ If you have your own Terms of use or AUP, use it
❏ Else, create one from the WISE Baseline AUP proposed by EOSC-Hub

h. Privacy policy

Another mandatory publicly available document is the Privacy Policy of the service. There are plenty of examples and OPERAS (as well as ERICs such as DARIAH or CLARIN) can provide some already existing ones that need adaptation for each OPERAS service.

❏ If you have a Privacy Policy, use it
❏ Privacy Policy needs to be publicly available online

4. Access and Order

a. Open / Wide Access Service

A simple yes/no selection. Basically, if you can answer the following question "Is your entire service free and open?", then you can select "yes". However for any other restrictions ("only usable by a certain group of users", "includes a paid access (independant from the fact that a free access is available)"), you have to select "no". Selecting "no" will trigger additional fields to be field in the template, they will be discussed just below.

❏ Make sure your service is 100% free and open, if not select "no"

b. Service access policy description

If there are restrictions (answered "no" in the previous question), a human-readable description needs to be provided here. It should describe who can use the service and explain why not all users can use the service. The users should understand if they can't use the service and for which reason(s). If there are no restrictions, please state that it is open to all.

❏ Add a human-readable description of who can access the service, and who can not

c. Access policies in use

There are currently 4 access policies "Excellence-driven", "Policy driven", "Wide access" and "Market-driven". It describes how researchers will be able to use your service if it is not free and open for all. Excellence driven will select only proven research to be accepted in the service. Policy driven will select only users that fit in a policy decided by the service, for example a type of user or a user from a specific country only (this is the case for example for the Certification service which is only intended to be used by publishers but viewable by anyone). Wide access is the most open policy provided, which can be used by anyone (with at most a registration/login step) and needs to be chosen when you answered yes to the previous question (Open / Wide Access Service). And Market driven is when a fee needs to be paid to become a user of the service.

❏ Select only one policy access for your service, preferably the most restrictive if more apply

d. Service ordering

This question, even if very important in general, is as of today unrelated to OPERAS services. Most (if not all) of today's orderable service in the EOSC Marketplace are directly linked to EOSC or some of its direct projects such as EOSC-Hub.

❏ Answer "no" unless sure about the use of orderable services on the EOSC Marketplace

5. Attribution

a. Attribution

This part of the template proposes service providers to acknowledge their service funders.
- ❏ Answer "yes" if the service was funded by a funding program

b. Funding body

If your service was funded by a program, add here its name and the grant number it received, for example the European Commission via some of its funding programs (e.g. H2020).
- ❏ Retrieve all funder bodies you used over the course of your service development

D. Submission of SDT

When you have ticked all the checkboxes of the previous chapter, you are very likely ready to submit your service to the EOSC-Hub Onboarding team. You will be asked to provide the filled SDT to the following email address: join@mailman.eosc-hub.eu. Once they validate that the document is correctly filled, they will pass it along to the next step of the validation. This next step is validation of the content itself.

E. Interaction with EOSC Onboarding team

The content validation will very likely happen when the EOSC-Hub Onboarding team starts checking the SDT of your service. When the document has been validated and all pending questions have been correctly answered, a final validation step is done by the whole team on one of their weekly meetings.

F. Final edition and proofreading

After the final validation of the EOSC-Hub Onboarding team, the data will be transposed from the SDT to the live EOSC Marketplace. The service owner will be contacted to create an account, then the access to Marketplace backend will be provided to the service owner(s) and a round of final checks by service owner(s) will be conducted. Once done, a confirmation needs to be provided to the Onboarding team.

G. Service available online to european researchers

And as a final step, the Onboarding team publishes the service online and it becomes available to the whole community on the EOSC Marketplace.

Since OPERAS services are open access, there is a possible extra step that wasn't covered in this document, it concerns the orderable functionality. A user can place an order for a service via the EOSC Marketplace that will directly be provided to the OPERAS service's helpdesk which will be responsible to handle the user's request.

IV. Conclusion and future of the EOSC-Hub SDT

Within the newly started EOSC-Enhance project[10], the EOSC-Hub SDT 1.3.0 will disappear and will be replaced by a new template that will be used to describe resources (including services) to be onboarded in the EOSC Marketplace - this will be based on provider profiles (currently the service provider part of the template) and resource profiles (currently the service description and management of the template). Therefore, this document will be revised for the future use of this new template once it is published and becomes in use. The new template that will be used will allow service owners, as well as the Onboarding team, to provide more automation with their service description. It will not be a document template as such, but a fully available web service, that will also include APIs in the future for addition and edition of services.

It is so far unclear when it will become in use, but it might be as soon as summer 2020. It was planned for June 2020, but might be pushed back, no exact date was given at the time of delivering this document. However, the information retrieval for each service provider will always be needed in order to onboard their service to the EOSC Marketplace, therefore, even if this document will be reviewed and corrected, the main information needed to onboard a service will stay the same and will be used in the next template iteration.

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[10] EOSC-Enhance: a 24-month project funded by the European Commission and tasked with progressing the vision for the European Open Science Cloud (EOSC)

V. Appendix

EOSC-hub Service Description Template v1.3.0

For onboarding services to the EOSC-hub Marketplace and to EOSC-portal

Please find in the following tabs the EOSC-hub Service Description Template for your consideration.

The EOSC-hub project seeks to provide access to a broad portfolio of resources and services provided by acting as a single entry point for researchers from all disciplines, through the creation of an integration and management system that is built on mature best-practice processes, policies and tools.

This template furthers the work of the EOSC-hub project, enabling the onboarding of selected services to EOSC-portal.

Resources and services onboarded in the initial phase of EOSC-hub are expected to have a minimum Technology Readiness Level of 7 (see tab TRL definitions). At TRL 7 we are able to list services, but TRL 8 or 9 will be needed in order to order through the portal. This is to ensure a coherent, trusted implementation base of technical solutions and service offerings through quality of standards to evolve an open, mature end-to-end data lifecycle workflow. For lower TRL services we may offer some support to increase maturity of services.

In order to begin the onboarding process if applicable, we would appreciate you filling out the below template. Your answers and feedback will determine how this process evolves. We recognize this may take some time, and thank you in advance for your crucial input.

Instructions   Please work through the tabs one by one.

Green tabs are basic information.

Blue tabs offer the opportunity to add additional information

Yellow tabs provide instructions or support.

On each tab, calls are coloured depending on their content

Green cells have been filled
Yellow cells are not required but have not been filled
Red cells are required and have not been filled

For each question, it will be indicated whether it is required, and whether the content provided would be public in the Portal and Marketplace. In addition, we indicate what form iof entry we expect for each topic. THis may later be used to create a more automated tool for this process. The entry types are:

Freetext You can write as much as needed   **Yes/No** Please answer only Yes or No

Singlel selection list Select excaclty one item from the   **Multiselect list** Select as many of the provided options as needed
options

SIngle line A single line of text is expected   **Email** A valid email address

URL A valid URL

Once you have filled the template as far as you can, or if you need more help, please send an email to join@mailman.eosc-hub.eu

Process

Once you submit the initial data it will be deal with by the EOSC-hub Shifter team, who will check it is all filled in. It will then be checked over by the Validator team who will confirm the entries and data.

Finally, it will be prepared for publication, and you will be provided a proof of the online entry before it goes live. Through this process you may be contacted requesting clarifications or requesting support. This may come from different individuals, but when you reply, please always keep join@mailman.eosc-hub.eu in CC.

We will attempt to make the process as fast as we can, though it will be dependant on how quickly you are able to provide information and clarifications, as well as how heavily loaded the onboarding process is.

License

Service Provider

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SP.1	Service Provider Name	Single Line	X	X		Name of the main organisation providing the service and acting as main contact point. In case of the service provider acts as a federator and the service is operated by different service provider partners , the individual partners delivering the service can be described using the "federation member" section).	Verify via easy internet searches if the service provider name is a valid organisation name. Validate if the service provider has a internet home page. Example: EUDAT	
SP.2	Country	Single Line	X	X		2-letter code of the country where the provider has their main headquarters: See tab "ISO Country Codes" or https://it.wikipedia.org/wiki/ISO_3166-1	Verify if the provide language codes via the provided list on the ISO wikipedia page or suggested tab. Example: FI (for Finland) GB (for the UK) DE (for German)	
SP.3	Service Provider URL	URL	X	X		URL for the service provider. Please provide the home page for the provider.	Verify if the URL is a valid URL (use the URL within a browser), Examples: EGI https://www.egi.eu/ EUDAT https://eudat.eu/ CSC https://www.csc.fi/	
SP.4	Service Provider Description	Freetext		X		Please describe your service provider in a few sentences.	Compare briefly to provider website to ensure it seems to be the right organisation, but generally take as is.	
SP.5	Service Provider Affiliation	Freetext		X		If your service provider is affiliated with a larger group, umbrella organisation or initiative, please list it here.	Verify via internet search that service provider and group are affiliated. Check that larger group lists the service provider or other verifiable proof of a connection.	
SP.6	Service Provider Logo	URL	X	X		Please provide a link to the logo/visual identity of the service provider. Minimum pixel dimensions are 180x120 pixels. Larger logos will be scaled to fit this.	Verify if the URL points to a logo picture of the corresponding Service Provider or source including a logo. If the URL is not a valid URL or does not reference a valid logo, contact requester for clarification. Example: www.provider.eu/downloads/branding-pack.zip www.acmeIT.com/files/image.jpg	
SP.7	Service Provider Contact Name	Single Line	X			Please provide the name of an individual at the provider who can act as a contact for this and any other services from the provider that are listed.	Check for obvious typos in the name. Confirm with a google search of the name and provider	
SP.8	Service Provider Contact Email	Email	X			Email address for the Service Provider contact	Verify if the provided information appears to be a valid email address.	
SP.9	Service Provider certifications	Freetext		X		List of certifications obtained for the provider (including the certification body and any certificate number or URL if available). NOTE this is not for certifications specific to the service, which are under Service Description.	The certifications provided can be generic or community specific. We do not qualify the quality of a certification, the only qualification is that the certification is described on a public webpage. Verify via easy internet searches if the provided names give a valid result describing the certification. If not, request clarification and an URL reference describing the certification. Check whether the certification body is real and appears to offer certification. Example: CoreTrustSeal (https://www.coretrustseal.org/) ISO27001 (https://www.iso.org/isoiec-27001-information-security.html)	

Basic Service Description

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.BSD.1	Service name	Single Line	X	X		Name of this specific service as assigned by the service provider. We recommend the name is fairly short and descriptive.	In general take as-is because it is specific to the service and the service name selected by the Service Provider. Only ask for clarifications if the name does not correspond with the name of the service name provided on the Service URL or in case of obvious typo's. Examples: EGI Cloud Compute, B2DROP, CSC ePouta	
SD.BSD.2	Service description	Freetext	X	X		Describe the service in a way that helps potential customers understand it and the benefit it brings. What is the main functionality of the service? The layout and content are up to the service provider.	In general take as-is because it is specific to the service provided by the Service Provider. Review the text, not to qualify the quality, but more on readability and for obvious typo's, if necessary, ask for clarifications. Also point out if it does not appear to address the potential customers and explain the main functionality of the service. If description is excessively long suggest being more concise.	
SD.BSD.3	Service URL	URL	X	X		Provide the URL for a web Page with information about the service that is maintained and hosted by the service provider. We recommend shorter URL's that clearly point to the service e.g. www.provider.eu/servicename	Verify if the URL is a valid URL (use the URL within a browser), if the URL refers to the web page of the service, this is commonly the web page of the service in the Service Catalogue of the Service Provider. Verify if the name on the web page corresponds to the name provided as Service Name. Examples: EGI Cloud Compute https://www.egi.eu/services/cloud-compute/ B2DROP https://eudat.eu/catalogue/B2DROP CSC ePouta https://research.csc.fi/epouta	
SD.BSD.4	Service endpoint	URL		X		Main URL to use the service (in the case of networked service)	Verify if the URL is a valid URL (use the URL within a browser), if the URL refers to the Web User Interface (WUI) of the service. Examples: EGI Cloud Compute B2DROP https://b2drop.eudat.eu CSC ePouta https://epouta.csc.fi/ (closed access, only accessible from specific IPs)	
SD.BSD.5	Service language	Single Line	X	X		Language of the user interface (add the language codes separated by comma using the 2-letter codes from the ISO https://en.wikipedia.org/wiki/List_of_ISO_639-1_codes or the tab 'ISO Language codes'). In case of multiple languages put the main/initial language first. Please seperate with comma-space (i.e. ", ") Example: en, fr, es	Verify if the provide language codes via the provided list on the ISO wikipedia page or iso language code tab.. Example: en (for English) nl (for Dutch) de (for German)	
SD.BSD.6	Geographical availability	Single Line	X	X		Is your service restricted to a certain location? Please indicate the countries/regions in which your service is available to the users. You may use 'Europe', 'Worldwide' or list individual two letter country codes from the tab , see link for appropriate country codes. from the tab 'ISO Country Codes'." Please seperate with comma-space (i.e. ", ") Example: BG, AU, NL.	Verify if the provide language codes via the provided list on the ISO wikipedia page. Example: FI (for Finland) GB (for the UK) DE (for German)	

Service marketing

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SM.1	Service tagline	Single Line	X	X		Short catch-phrase for marketing and advertising purposes (1 line). It will be usually displayed close the service name and should refer to the main value or purpose of the service.	In general take as-is because it is specific to the service provided by the Service Provider. Only ask for clarifications if the tagline does not correspond to the provided Service Description and in case of obvious typo's.	
SD.SM.2	Service logo	URL	X	X		Please provide a link to the logo of your service (URL or image). The logo will be visible to the EOSC users. If you do not have a service logo you can instead use the provider logo. Minimum pixel dimensions are 180x120 pixels. Larger logos will be scaled to fit this.	Verify if the URL points to a logo picture or source including a logo that relate to the service in question. If the URL is not a valid URL or does not reference a valid logo, contact requester for clarification. Example: www.provider.eu/downloads/branding-pack.zip www.acmeIT.com/files/image.jpg	

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SM.3	Service multimedia	URL		X		Please provide a link to any screenshots, videos or other multimedia will help make your service clearer and more attractive to customers. Please Ensure that we have permission to use ant material provided.	Verify if the URL points to multimedia that relates to the service in question. If the URL is not a valid URL or does not reference a valid logo, contact requester for clarification. Example: www.provider.eu/downloads/screenshot-pack.zip www.acmeIT.com/service/multimedia Example: B2DROP https://www.youtube.com/watch?v=YyjPv4s7DxY	
SD.SM.4	Use cases/case studies	Freetext		X		Marketpalce needsa	This field can be provided in different ways. It can be provided as a textual description, but it can also be provided as URL references to 1 or more use case/case study descriptions. If the use cases are provided as textual description, review the text, not to qualify the quality, but more on readability and for obvious typos. In case of an URL, verify if the URL is a valid URL (use the URL within a browser), if the URL refers to the web page of the service, if the screenshots and/or videos correspond to the service described.	

Service customers and users

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SCU.1	Target user categories	Multiselect list	X	X		Type of Individuals that primarily benefits from and practically uses a service. Choose any from the below list applicable to your service; and list them. Please only use the types listed. **Researchers** (i.e. single researcher) **Research Community** (e.g. Virtual Organisation) **Business** **Research project** **Providers**	Confirm they chose from list provided. Try and verify that they are talking about the users (not customers). Otherwise in general take as-is because it is specific to the service provided by the Service Provider.	
SD.SCU.2	Target customer tags	Freetext		X		List of keywords associated with the customers of this services. By customer, we mean an organisation that commissions a service provider to deliver one or more services, doing so on behalf of one or more users; customers commission a service and usually discuss the terms of the contract and of the SLA but do not necessarily use it; users use the service but do not necessarily commission it . Unlike SD.SCU.1 Target user categories, this lets you atatch any useful terms to the customers of your service. Please seperate with comma-space (i.e. ", "). Maximum 50 characters per tag, shorter tags preferred. Example: drug development, biopharma, neglected diseases, malaria	Customer tags are an additional method to filter services which is more flexible in word definition as the User Categories which are predefined. In general take as-is because it is specific to the service and selected by the Service Provider. Only ask for clarifications in case unfamiliar words and/or obvious typo's. Verify that they are talking about customers (not users).	

Service classification & maturity

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SCM.1	Service category	Multiselect list	X	X		The category of your service. Choose any from the below list applicable to your service; and list them. Please only use the types listed. **Sharing & Discovery** **Processing & Analysis** **Compute** **Storage** **Data Management** **Networking** **Training and Support** **Security and Operations**	Confirm that they chose from the plist provided. Verify if the category chosen is logical to service description.	
SD.SCM.2	Service tags	Freetext		X		Comma-separated list of keywords associated to the service to be used to simplify search by relevant keywords Unlike the limited list seen in "SD.SCM.1 Service Category" this lets you attach any terms you desire to your service. Please seperate with comma-space (i.e. ", "). Maximum 50 characters per tag, shorter tags preferred. Example: antibodies, bio-physics, gel electrophoresis, bioinformatics	Service tags are an additional method to filter services which is more flexible in word definition as the Service Categories which are predefined. In general take as-is because it is specific to the service and selected by the Service Provider. Only ask for clarifications in case unfamiliar words and/or obvious typo's.	

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SCM.3	Research fields	Multiselect list	X	X		Comma-separated list of the Research fields that are related to this service (please, refer to tab 'Research Disciplines'). Use Level 2 Please seperate with comma-space (i.e. ", ").	Verify if the provided scientific fields correspond with names provided webpage.	
SD.SCM.4	Service TRL	Single selection list	X	X		Used to tag the service to the Technology Readiness Level (choose among 7,8,9). Please see tab "TRL Definitions" for details. Please note: for the listing of services in the EOSC Service Catalogue, services must comply to a minimum maturity of TRL 7, orderable services in the EOSC Marketplace must comply to a minimum level of TRL8.	Only services with a TRL 7 and above are to be accepted. Verify the provided TRL according to the following defined criteria: https://wiki.eosc-hub.eu/display/EOSC/Service+Maturity+Classification or the TRL Definitiosn tab	

Standards & Technologies

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.ST.1	Service Standards	Freetext		X		List of formal and externally recognised standards that this service conforms to, and links to those standards.	The standards provided can be generic or community specific. We do not qualify an standard, the only qualification is that the standard is described on a public webpage. Verify via easy internet searches if the provided names give a valid result describing the standard. If not, request clarification and an URL reference describing the standard. Example: Webdav (https://en.wikipedia.org/wiki/WebDAV , https://tools.ietf.org/html/rfc4918, http://www.webdav.org/) OAI-PMH (https://www.openarchives.org/pmh/) OpenAIRE Guidelines for Data Providers (https://guidelines.openaire.eu/en/latest/data/index.html)	
SD.ST.2	Service Certifications	Freetext		X		List of certifications obtained for the service (including the certification body and any certificate number or URL if available). NOTE: this is not for provider Certifications which are under Service Provider.	The certifications provided can be generic or community specific. We do not qualify the quality of a certification, the only qualification is that the certification is described on a public webpage. Verify via easy internet searches if the provided names give a valid result describing the certification. If not, request clarification and an URL reference describing the certification. Check whether the certification body is real and appears to offer certification. Example: CoreTrustSeal (https://www.coretrustseal.org/) ISO27001 (https://www.iso.org/isoiec-27001-information-security.html)	
SD.ST.3	Open Source Technologies	Freetext		X		You may list any open source technologies you incoportate into your service with links to their pages on e.g. Github etc. Please note this is for specific technologies not very broad ones like HTTP or a Linux distribution.	Check projects exist.	

Service dependencies

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SD.SD.1	Dependencies / Required services from the EOSC Portfolio	Freetext				Please list any other EOSC services that your service requires in order to operate. Provide URLs to their pages in the EOSC Portal marketplace	These listed services are listed as Required services on the service catalogue page on the marketplace. Verify if the services listed are already available on the marketplace (https://marketplace.eosc-portal.eu), if not, verify via easy internet searches if the provided names provide relevant results. If no valid or relevant results are provided, maybe the requestor has made a typo in the naming, action request clarification. Example: Service: GEOSS Web Portal (https://marketplace.eosc-portal.eu/services/geoss-web-portal) Related services: EGI Compute Cloud, GEO DAB (both services are already registered within EOSC Marketplace)	
SD.SD.2	Related services	Freetext		X		Please list any other EOSC services that you are aware of that your service can cooperate with. Please provide URLS from the Marketplace of the services.	These listed services are listed as Suggested Compatible Services on the service catalogue page on the marketplace. Verify if the services listed are already available on the marketplace (https://marketplace.eosc-portal.eu), if not, verify via easy internet searches if the provided names provide relevant results. If no valid or relevant results are provided, maybe the requestor has made a typo in the naming, action request clarification. Example: Service: GEOSS Web Portal (https://marketplace.eosc-portal.eu/services/geoss-web-portal) Related services: EGI Compute Cloud, GEO DAB (both services are already registered within EOSC Marketplace)	

| SD.SD.3 | Related providers and platforms | Freetext | | X | Please list any provider (or proviuder group) you wish to credit as contributing to this service, or any platform this service is part of, e.g. a thematic portal for a certain community. You may list providers already registered in the marketplace, provide a URL to a provider federation, or mention a platform (either in the marketplace or to be added). | If the service is part of a larger platform, the service provider can provide the name of the related platform.

Example:
Services: HADDOCK, PowerFit, AMBER
Related Platform: WeNMR Suite |

Service Management

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
SM.1	Service Level Agreement or Service Level Specification	URL		X		Link to a Service Level Agreement (SLA) or Service Level Specification (SLS) applicable to the service. Note an SLA or SLS is not currently a requirement but is likely to be one by the end of 2020. Support is available in forming an SLA or SLS is available at https://wiki.eosc-hub.eu/display/EOSC/Service+Provider+Documentation	Verify if the URL is a valid URL (use the URL within a browser), verify if the URL refers to the web page, document or other information describing the service. If not ask clarification from the Service Provider. The quality of the content has not to be verified. Note: do not accept a terms of use of acceptable use policy as an SLA. Example: EGI Corporate SLA https://documents.egi.eu/document/2733	
SM.2	Service owner name/group	Single Line				Name of the person or group with accountability for the whole service from a management point of view from the service provider	In general take as-is because it is specific to the service and selected by the Service Provider. Only ask for clarifications in case obvious typo's.	
SM.3	Service owner contact	Email	X			E-mail contact of the service owner person or group	Verify if the provided information appears to be a valid email address.	
SM.4	Service support name/group	Single Line				Name of the person or group contacted by the portfolio operator to request technical/operational support	In general take as-is because it is specific to the service and selected by the Service Provider. Only ask for clarifications in case obvious typo's.	
SM.5	Service support contact	Email	X			E-mail contact of the service support person or group for use by the portfolio operator to request technical/operational support	Verify if the provided information appears to be a valid email address.	
SM.6	Service security name/group	Single Line				Name of the person or group with responsibility for the security aspects of the service	In general take as-is because it is specific to the service and selected by the Service Provider. Only ask for clarifications in case obvious typo's.	
SM.7	Service security contact	Email	X			E-mail contact of the person or group responsible for the security aspects of the service	Verify if the provided information appears to be a valid email address.	
SM.8	Helpdesk URL	URL	X	X		Link to your service helpdesk, where users with incidents and service requests will be directed. It should allow private communication with providers (not a public forum). This field is for a helpdesk URL, you must fill one of this or the Helpdesk email field SM.9.	The link to the helpdesk can be provided in 2 different ways, either this field of SM.9 must be filled. For this field it should be a URL to a helpdesk portal, verify the URL by accessing the URL via a web browser Example: WeNMR HADDOCK https://ask.bioexcel.eu/c/haddock	
SM.9	Helpdesk email address	Email	X	X		Email to contact your service helpdesk, where users with incidents and service requests will be directed. It should allow private communication with providers (not generate a public result). This field is for a helpdesk email, you must fill one of this or the Helpdesk URL field SM.8. It should be a generic (non personal) email e.g. servicename-support@service-provider.eu	The link to the helpdesk can be provided in 2 different ways, either this field of SM.8 must be filled. For this field it should be the email address of the helpdesk, verify the validity of the email address- should be nonpersonal email if possible (request non personal if personal is used, though we might accept personal for TRL 7/listed only in some cases) Example: CLARIN VLO vlo@clarin.eu	
SM.10	Service user manual	URL	X	X		Link to your service user manual or other basic user instructional information.	Verify if the URL is a valid URL (use the URL within a browser), verify if the URL refers to the web page, document or other information describing the service. If not ask clarification from the Service Provider. The quality of the content has not to be verified, but the information provide must have a look and feel of a user manual. Example: WeNMR HADDOCK http://www.bonvinlab.org/software/haddock2.2/manual/ CLARIN VLO https://vlo.clarin.eu/help EGI Compute Cloud https://wiki.egi.eu/wiki/Federated_Cloud_user_support	
SM.11	Service training or tutorial information	URL		X		Link to page with training information on the service.	Verify if the URL is a valid URL (use the URL within a browser), verify if the URL refers to the web page, document or other information describing the service. If not ask clarification from the Service Provider. The quality of the content has not to be verified, but the information provide must have a look and feel and to be useful as training material. Example: EUDAT B2HANDLE https://eudat.eu/how-to-manage-persistent-identifiers-b2handle EUDAT B2SHARE https://www.eudat.eu/b2share-training-suite, https://github.com/EUDAT-Training/B2SHARE-Training.	
SM.12	Service monitoring URL	URL		X		Web Page with monitoring information about this service	Verify if the URL is a valid URL (use the URL within a browser) and provides some monitoring information. If not ask clarification from the Service Provider. We do not assess the quality and/or usefulness of the monitoring page. Example: EUDAT Monitoring http://avail.eudat.eu/ EGI Monitoring http://argo.egi.eu/ CLARIN Service Status http://status.clarin.eu/	
SM.13	Service maintenance URL	URL		X		Web Page with information about planned maintenance windows for this service	Verify if the URL is a valid URL (use the URL within a browser) and provides information on downtimes of the service. If not ask clarification from the Service Provider. Example: EGI GOCDB https://goc.egi.eu/portal/index.php?Page_Type=Downtimes_Overview CLARIN Planned maintenances https://www.clarin.eu/status	

ID	Name	Type			Description	Verification
SM.14	Service terms of use / Acceptable use Policy / Terms and Conditions	URL	X	X	Link describing the rules, service conditions and usage policy which one must agree to abide by in order to use the service. Example: https://marketplace.egi.eu/content/3-terms-and-conditions-of-use We suggest the WISE Baseline AUP, see https://aarc-project.eu/wp-content/uploads/2019/03/AARC-I044-Implementers-Guide-to-the-WISE-Baseline-AUP.pdf if you do not already have one.	Verify if the URL is a valid URL (use the URL within a browser), verify if the URL refers to the web page, document or other information describing the service. If not ask clarification from the Service Provider. The quality of the content has not to be verified. Document must be public and available BEFORE you log in. If there is no Terms of Use / Acceptable Use Policy or the current one appears of low quality, suggest the WISE Baseline AUP, see https://aarc-project.eu/wp-content/uploads/2019/03/AARC-I044-Implementers-Guide-to-the-WISE-Baseline-AUP.pdf Example: EGI Marketplace ToU https://marketplace.egi.eu/content/3-terms-and-conditions-of-use EUDAT ToU http://hdl.handle.net/11304/e43b2e3f-83c5-4e3f-b8b7-18d38d37a6cd
SM.15	Privacy policy	URL	X	X	Link to the privacy policy applicable to the service. Privacy policies are required for all services, since they will likely fall under the GDPR limitations.	Verify if the URL is a valid URL (use the URL within a browser), verify if the URL refers to the web page, document or other information describing the service. If not ask clarification from the Service Provider. The quality of the content has not to be verified. Examples: EGi Data Privacy Statement https://www.egi.eu/privacy-policy/ EGi Check-in https://aai.egi.eu/privacy.html EUDAT B2ACCESS https://b2access.eudat.eu/unitygw/VAADIN/files/data-privacy-statement.html

Access and Order

Access Policies

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
AO.AP.1	Open /Wide Access Service	Yes/No	X	X		Is your entirely service free and open? It may require login, but with no further restrictions (.e.g who can login, or any validaiton for a specific group). Please note that if you have a free and paid tier you need to answer no here, and list both models as access policies below.	Verify an answer has been given. If the answer is Yes, check that service can be accessed wither freely or with instant registration.	
AO.AP.2	Service access policy description	Freetext	X	X		Please describe your access policies for the customers in general terms. They need to be able to understand how this impacts their ability to use the service. If multiple access policies apply, please mention them all. For instance you service may be free/open access for basic use but require approval or payment to enable additional features. You will be able to describe the access policies in more detail as relates to orderable service options if you chose to enable ordering via the EOSC portal.	Check that the answer can be generally understood by users, and seems to relate to the servie as shown on its website.	
AO.AP.3	Access Policies in use	multiselect list	X			Please indicate which of the following policy types you use to control access to your service. - **Excellence-driven**: users are selected based on ran evaluation of esearch excellence, originality, quality and technical and ethical feasibility of an application evaluated through peer review conducted by internal or external experts of the activity to be supported by the service - **Policy driven**: users are selected based on a policy that relates to (for instance) which country, discipline, organisational affiliation applies to them. - **Wide access**: users can freely access the service provided, registration may be needed - **Market-driven**: users need to pay a fee to access the service	Check only the four options provided are listed.	

Service Ordering

Code	Entry name	Entry type	Required	Public	Your answer	Guidance	Validation criteria	Notes
AO.SO.1	Service ordering	Yes/No	X			Do you wish to allow your service to be ordered direct from EOSC Portal? If you do not, instead users will simply be forwarded to your website. For open / wide access services ordering, typically users are just directed to the provider website, unless they intgerate with EOSC AII and the service can be accessed directly for logged in Portal users. If you do wish to enable ordering, then once the service is published in the Portal, you will be contacted to configuire the ordering functions. .	Check an answer is given	
AO.SO.2	Service administrators	Freetext				List the email addresses of those that should be able to log in and configure ordering options. They will be invited to register on the portal to do so.	Check that it is a list of email addrsses without obvious errors.	

Attribution

Code	Entry name	Entry type	Required	Public	Your answer	Guidance
AT.0	**Attribution**	Yes/No	X		Yes	Do you wish to acknowledge a project or external source of funding or other resources for this service? Please answer Yes or No. You will be able to fill in details below.

Attribution 1

Code	Entry name	Entry type	Required	Public	Your answer	Guidance
AT.1.1	Funding body	Single Line		X		Name of the funding body, e.g. European Commission UK BBSRC CNRS
AT.1.2	Funding program	Single Line		X		Name of the funding program that supported this work e.g. Horizon 2020 UK eScience Program swissuniversities P5 program
AT.1.3	Grant/project name	Single Line		X		Name of the project or grant that (partially) funded this work

Attribution 2

Code	Entry name	Entry type	Required	Public	Your answer	Guidance
AT.2.1	Funding body	Single Line		X		Name of the funding body, e.g. European Commission UK BBSRC CNRS
AT.2.2	Funding program	Single Line		X		Name of the funding program that supported this work e.g. Horizon 2020 UK eScience Program swissuniversities P5 program
AT.2.3	Grant/project name	Single Line		X		Name of the project or grant that (partially) funded this work

Attribution 2

Code	Entry name	Entry type	Required	Public	Your answer	Guidance

Code	Entry name	Entry type	Required	Public	Your answer	Guidance
AT.3.1	Funding body	Single Line		X		Name of the funding body, e.g. European Commission UK BBSRC CNRS
AT.3.2	Funding program	Single Line		X		Name of the funding program that supported this work e.g. Horizon 2020 UK eScience Program swissuniversities P5 program
AT.3.3	Grant/project name	Single Line		X		Name of the project or grant that (partially) funded this work

Attribution 2

Code	Entry name	Entry type	Required	Public	Your answer	Guidance
AT.4.1	Funding body	Single Line		X		Name of the funding body, e.g. European Commission UK BBSRC CNRS
AT.4.2	Funding program	Single Line		X		Name of the funding program that supported this work e.g. Horizon 2020 UK eScience Program swissuniversities P5 program
AT.4.3	Grant/project name	Single Line		X		Name of the project or grant that (partially) funded this work

M 49 name	ISO 3166-1 alpha-2 code	Notes
Andorra	AD	
United Arab Emirates	AE	
Afghanistan	AF	
Antigua and Barbuda	AG	
Anguilla	AI	
Albania	AL	
Armenia	AM	
Angola	AO	
Argentina	AR	
American Samoa	AS	
Austria	AT	
Australia	AU	
Aruba	AW	
Åland Islands	AX	
Azerbaijan	AZ	
Bosnia and Herzegovina	BA	
Barbados	BB	
Bangladesh	BD	
Belgium	BE	
Burkina Faso	BF	
Bulgaria	BG	
Bahrain	BH	
Burundi	BI	
Benin	BJ	
Saint Barthélemy	BL	
Bermuda	BM	
Brunei Darussalam	BN	
Bolivia (Plurinational State of)	BO	
Bonaire, Sint Eustatius and Saba	BQ	
Brazil	BR	
Bahamas	BS	
Bhutan	BT	
Botswana	BW	
Belarus	BY	
Belize	BZ	
Canada	CA	
Democratic Republic of the Congo	CD	
Central African Republic	CF	
Congo	CG	
Switzerland	CH	
Côte d'Ivoire	CI	
Cook Islands	CK	
Chile	CL	
Cameroon	CM	
China	CN	
Colombia	CO	
Costa Rica	CR	
Cuba	CU	
Cabo Verde	CV	
Curaçao	CW	
Cyprus	CY	
Czech Republic	CZ	
Germany	DE	
Djibouti	DJ	
Denmark	DK	
Dominica	DM	
Dominican Republic	DO	
Algeria	DZ	
Ecuador	EC	
Estonia	EE	
Egypt	EG	
Western Sahara	EH	
Eritrea	ER	
Spain	ES	
Ethiopia	ET	
Finland	FI	
Fiji	FJ	
Falkland Islands (Malvinas)	FK	

Country	Code
Micronesia (Federated States of)	FM
Faeroe Islands	FO
France	FR
Gabon	GA
United Kingdom of Great Britain and Northern Ireland	GB
Grenada	GD
Georgia	GE
French Guiana	GF
Guernsey	GG
Ghana	GH
Gibraltar	GI
Greenland	GL
Gambia	GM
Guinea	GN
Guadeloupe	GP
Equatorial Guinea	GQ
Greece	GR
Guatemala	GT
Guam	GU
Guinea-Bissau	GW
Guyana	GY
China, Hong Kong Special Administrative Region	HK
Honduras	HN
Croatia	HR
Haiti	HT
Hungary	HU
Indonesia	ID
Ireland	IE
Israel	IL
Isle of Man	IM
India	IN
Iraq	IQ
Iran (Islamic Republic of)	IR
Iceland	IS
Italy	IT
Jersey	JE
Jamaica	JM
Jordan	JO
Japan	JP
Kenya	KE
Kyrgyzstan	KG
Cambodia	KH
Kiribati	KI
Comoros	KM
Saint Kitts and Nevis	KN
Democratic People's Republic of Korea	KP
Republic of Korea	KR
Kuwait	KW
Cayman Islands	KY
Kazakhstan	KZ
Lao People's Democratic Republic	LA
Lebanon	LB
Saint Lucia	LC
Liechtenstein	LI
Sri Lanka	LK
Liberia	LR
Lesotho	LS
Lithuania	LT
Luxembourg	LU
Latvia	LV
Libya	LY
Morocco	MA
Monaco	MC
Republic of Moldova	MD
Montenegro	ME
Saint Martin (French part)	MF
Madagascar	MG
Marshall Islands	MH
The former Yugoslav Republic of Macedonia	MK

Country	Code
Mali	ML
Myanmar	MM
Mongolia	MN
China, Macao Special Administrative Region	MO
Northern Mariana Islands	MP
Martinique	MQ
Mauritania	MR
Montserrat	MS
Malta	MT
Mauritius	MU
Maldives	MV
Malawi	MW
Mexico	MX
Malaysia	MY
Mozambique	MZ
Namibia	NA
New Caledonia	NC
Niger	NE
Norfolk Island	NF
Nigeria	NG
Nicaragua	NI
Netherlands	NL
Norway	NO
Nepal	NP
Nauru	NR
Niue	NU
New Zealand	NZ
Oman	OM
Panama	PA
Peru	PE
French Polynesia	PF
Papua New Guinea	PG
Philippines	PH
Pakistan	PK
Poland	PL
Saint Pierre and Miquelon	PM
Pitcairn	PN
Puerto Rico	PR
State of Palestine	PS
Portugal	PT
Palau	PW
Paraguay	PY
Qatar	QA
Reunion	RE
Romania	RO
Serbia	RS
Russian Federation	RU
Rwanda	RW
Saudi Arabia	SA
Solomon Islands	SB
Seychelles	SC
Sudan	SD
Sweden	SE
Singapore	SG
Saint Helena	SH
Slovenia	SI
Svalbard and Jan Mayen Islands	SJ
Slovakia	SK
Sierra Leone	SL
San Marino	SM
Senegal	SN
Somalia	SO
Suriname	SR
South Sudan	SS
Sao Tome and Principe	ST
El Salvador	SV
Sint Maarten (Dutch part)	SX
Syrian Arab Republic	SY
Swaziland	SZ

Country	Code		
Turks and Caicos Islands	TC		
Chad	TD		
Togo	TG		
Thailand	TH		
Tajikistan	TJ		
Tokelau	TK		
Timor-Leste	TL		
Turkmenistan	TM		
Tunisia	TN		
Tonga	TO		
Turkey	TR		
Trinidad and Tobago	TT		
Tuvalu	TV		
United Republic of Tanzania	TZ		
Ukraine	UA		
Uganda	UG		
United States of America	US		
Uruguay	UY		
Uzbekistan	UZ		
Holy See	VA		
Saint Vincent and the Grenadines	VC		
Venezuela (Bolivarian Republic of)	VE		
British Virgin Islands	VG		
United States Virgin Islands	VI		
Viet Nam	VN		
Vanuatu	VU		
Wallis and Futuna Islands	WF		
Samoa	WS		
Yemen	YE		
Mayotte	YT		
South Africa	ZA		
Zambia	ZM		
Zimbabwe	ZW		
Channel Islands		Use GB	
Sark		Use GB	

ISO Language Codes

ISO language name	Native name (endonym)	ISO 639-1 code
Abkhazian	аҧсуа бызшәа, аҧсшәа	ab
Afar	Afaraf	aa
Afrikaans	Afrikaans	af
Akan	Akan	ak
Albanian	Shqip	sq
Amharic	አማርኛ	am
Arabic	العربية	ar
Aragonese	aragonés	an
Armenian	Հայերեն	hy
Assamese	অসমীয়া	as
Avaric	авар мацӀ, магӀарул мацӀ	av
Avestan	avesta	ae
Aymara	aymar aru	ay
Azerbaijani	azərbaycan dili	az
Bambara	bamanankan	bm
Bashkir	башҡорт теле	ba
Basque	euskara, euskera	eu
Belarusian	беларуская мова	be
Bengali	বাংলা	bn
Bihari languages	भोजपुरी	bh
Bislama	Bislama	bi
Bosnian	bosanski jezik	bs
Breton	brezhoneg	br
Bulgarian	български език	bg
Burmese	ဗမာစာ	my
Catalan, Valencian	català, valencià	ca
Central Khmer	ខ្មែរ, ខេមរភាសា, ភាសាខ្មែរ	km
Chamorro	Chamoru	ch
Chechen	нохчийн мотт	ce
Chichewa, Chewa, Nyanja	chiCheŵa, chinyanja	ny
Chinese	中文 (Zhōngwén), 汉语, 漢語	zh
Church Slavic, Old Slavonic	ѩзыкъ словѣньскъ	cu
Chuvash	чӑваш чӗлхи	cv
Cornish	Kernewek	kw
Corsican	corsu, lingua corsa	co
Cree	ᓀᐦᐃᔭᐍᐏᐣ	cr
Croatian	hrvatski jezik	hr
Czech	čeština, český jazyk	cs
Danish	dansk	da
Divehi, Dhivehi, Maldivian	ދިވެހި	dv
Dutch, Flemish	Nederlands, Vlaams	nl
Dzongkha	རྫོང་ཁ	dz
English	English	en
Esperanto	Esperanto	eo
Estonian	eesti, eesti keel	et
Ewe	Eʋegbe	ee
Faroese	føroyskt	fo
Fijian	vosa Vakaviti	fj
Finnish	suomi, suomen kieli	fi
French	français, langue française	fr
Fulah	Fulfulde, Pulaar, Pular	ff
Gaelic, Scottish Gaelic	Gàidhlig	gd
Galician	Galego	gl
Ganda	Luganda	lg
Georgian	ქართული	ka
German	Deutsch	de
Greek, Modern (1453-)	ελληνικά	el
Guarani	Avañe'ẽ	gn
Gujarati	ગુજરાતી	gu
Haitian, Haitian Creole	Kreyòl ayisyen	ht
Hausa	(Hausa) هَوُسَ	ha

ISO language name	Native name (endonym)	ISO 639-1 code
Hebrew	עברית	he
Herero	Otjiherero	hz
Hindi	हिन्दी, हिंदी	hi
Hiri Motu	Hiri Motu	ho
Hungarian	magyar	hu
Icelandic	Íslenska	is
Ido	Ido	io
Igbo	Asụsụ Igbo	ig
Indonesian	Bahasa Indonesia	id
Interlingua (International Auxiliary Language Association)	Interlingua	ia
Interlingue, Occidental	(originally:) Occidental, (after WWII:) Interlingue	ie
Inuktitut	ᐃᓄᒃᑎᑐᑦ	iu
Inupiaq	Iñupiaq, Iñupiatun	ik
Irish	Gaeilge	ga
Italian	Italiano	it
Japanese	日本語 (にほんご)	ja
Javanese	ꦧꦱꦗꦮ, Basa Jawa	jv
Kalaallisut, Greenlandic	kalaallisut, kalaallit oqaasii	kl
Kannada	ಕನ್ನಡ	kn
Kanuri	Kanuri	kr
Kashmiri	कश्मीरी, كشميري‎	ks
Kazakh	қазақ тілі	kk
Kikuyu, Gikuyu	Gĩkũyũ	ki
Kinyarwanda	Ikinyarwanda	rw
Kirghiz, Kyrgyz	Кыргызча, Кыргыз тили	ky
Komi	коми кыв	kv
Kongo	Kikongo	kg
Korean	한국어	ko
Kuanyama, Kwanyama	Kuanyama	kj
Kurdish	Kurdî, كوردی‎	ku
Lao	ພາສາລາວ	lo
Latin	latine, lingua latina	la
Latvian	latviešu valoda	lv
Limburgan, Limburger, Limburgish	Limburgs	li
Lingala	Lingála	ln
Lithuanian	lietuvių kalba	lt
Luba-Katanga	Kiluba	lu
Luxembourgish, Letzeburgesch	Lëtzebuergesch	lb
Macedonian	македонски јазик	mk
Malagasy	fiteny malagasy	mg
Malay	Bahasa Melayu, بهاس ملايو‎	ms
Malayalam	മലയാളം	ml
Maltese	Malti	mt
Manx	Gaelg, Gailck	gv
Maori	te reo Māori	mi
Marathi	मराठी	mr
Marshallese	Kajin M̧ajeļ	mh
Mongolian	Монгол хэл	mn
Nauru	Dorerin Naoero	na
Navajo, Navaho	Diné bizaad	nv
Ndonga	Owambo	ng
Nepali	नेपाली	ne
North Ndebele	isiNdebele	nd
Northern Sami	Davvisámegiella	se
Norwegian	Norsk	no
Norwegian Bokmål	Norsk Bokmål	nb
Norwegian Nynorsk	Norsk Nynorsk	nn
Occitan	occitan, lenga d'òc	oc
Ojibwa	ᐊᓂᔑᓈᐯᒧᐎᓐ	oj
Oriya	ଓଡ଼ିଆ	or
Oromo	Afaan Oromoo	om
Ossetian, Ossetic	ирон ӕвзаг	os

ISO language name	Native name (endonym)	ISO 639-1 code
Pali	पालि, पाळि	pi
Pashto, Pushto	پښتو	ps
Persian	فارسی	fa
Polish	język polski, polszczyzna	pl
Portuguese	Português	pt
Punjabi, Panjabi	ਪੰਜਾਬੀ, پنجابی	pa
Quechua	Runa Simi, Kichwa	qu
Romanian, Moldavian, Mo	Română	ro
Romansh	Rumantsch Grischun	rm
Rundi	Ikirundi	rn
Russian	русский	ru
Samoan	gagana fa'a Samoa	sm
Sango	yângâ tî sängö	sg
Sanskrit	संस्कृतम्	sa
Sardinian	sardu	sc
Serbian	српски језик	sr
Shona	chiShona	sn
Sichuan Yi, Nuosu	ꆈꌠꉙ Nuosuhxop	ii
Sindhi	सिन्धी, سنڌي، سندھی	sd
Sinhala, Sinhalese	සිංහල	si
Slovak	Slovenčina, Slovenský Jazyk	sk
Slovenian	Slovenski Jezik, Slovenščina	sl
Somali	Soomaaliga, af Soomaali	so
South Ndebele	isiNdebele	nr
Southern Sotho	Sesotho	st
Spanish, Castilian	Español	es
Sundanese	Basa Sunda	su
Swahili	Kiswahili	sw
Swati	SiSwati	ss
Swedish	Svenska	sv
Tagalog	Wikang Tagalog	tl
Tahitian	Reo Tahiti	ty
Tajik	тоҷикӣ, toçikī, تاجیکی	tg
Tamil	தமிழ்	ta
Tatar	татар теле, tatar tele	tt
Telugu	తెలుగు	te
Thai	ไทย	th
Tibetan	བོད་ཡིག	bo
Tigrinya	ትግርኛ	ti
Tonga (Tonga Islands)	Faka Tonga	to
Tsonga	Xitsonga	ts
Tswana	Setswana	tn
Turkish	Türkçe	tr
Turkmen	Türkmen, Түркмен	tk
Twi	Twi	tw
Uighur, Uyghur	ئۇيغۇرچە, Uyghurche	ug
Ukrainian	Українська	uk
Urdu	اردو	ur
Uzbek	Oʻzbek, Ўзбек, أۇزبېك	uz
Venda	Tshivenḓa	ve
Vietnamese	Tiếng Việt	vi
Volapük	Volapük	vo
Walloon	Walon	wa
Welsh	Cymraeg	cy
Western Frisian	Frysk	fy
Wolof	Wollof	wo
Xhosa	isiXhosa	xh
Yiddish	ייִדיש	yi
Yoruba	Yorùbá	yo
Zhuang, Chuang	Saɯ cueŋƅ, Saw cuengh	za
Zulu	isiZulu	zu

Technology Readiness Level (TRL) is a means of systematically gauging 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 [7] 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 subcomponents, 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

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

1 Natural Sciences
- 1.1 Mathematics
- 1.2 Computer sciences
- 1.3 Information sciences
- 1.4 Earth sciences
- 1.5 Biological sciences
- 1.6 Physical sciences
- 1.7 Chemical sciences
- 1.99 Other Natural Sciences

2 Engineering and Technology
- 2.1 Civil engineering
- 2.2 Electrical, electronic and information engineering
- 2.3 Mechanical engineering
- 2.4 Aerospace engineering
- 2.5 Chemical engineering
- 2.6 Materials engineering
- 2.7 Bioengineering and Biomedical engineering
- 2.8 Environmental engineering
- 2.9 Environmental biotechnology
- 2.10 Industrial biotechnology
- 2.11 Nano-technology
- 2.99 Other Engineering and Technology

3 Medical and Health Sciences
- 3.1 Basic medicine
- 3.2 Clinical medicine
- 3.3 Health sciences
- 3.4 Medical biotechnology
- 3.99 Other Medical and Health Sciences

4 Agricultural Sciences
- 4.1 Agriculture, forestry, and fisheries
- 4.2 Animal and dairy sciences
- 4.3 Veterinary sciences
- 4.4 Agricultural biotechnology
- 4.99 Other Agricultural Sciences

5 Social Sciences
- 5.1 Psychology
- 5.2 Economics, finance and business
- 5.3 Educational sciences
- 5.4 Sociology
- 5.5 Law
- 5.6 Political sciences
- 5.7 Social and economic geography
- 5.8 Media and communications
- 5.99 Other Social Sciences

6 Humanities
- 6.1 History and Archaeology
- 6.2 Languages and literature
- 6.3 Philosophy, ethics and religion
- 6.4 Arts
- 6.99 Other Humanities

7 Support Activities
- 7.1 Digital Archives
- 7.2 Infrastructure Development
- 7.3 Training/Demonstrations
- 7.4 Miscellaneous
- 7.99 Other Support Activites

8 Interdisciplinary
- 8.1 Interdisciplinary

Based on list from https://wiki.egi.eu/wiki/Scientific_Disciplines

Please use Level 2 decriptions (x.x) e.g. 1.1 Mathermatics not 1. Natural Sciences.