

EOSC Association Board position paper on the EOSC Federation and the role of EOSC Nodes

EOSC Association Board of Directors
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EOSC is to be an open, trusted, federation of research communities and related infrastructures that enables European researchers to store, share, process, analyse, and reuse research digital objects (e.g. FAIR data, publications and software) using a range of services operated by or supplied to those research communities¹. EOSC accelerates Open Science, FAIR data management and use of digital methods and services in research by stimulating cooperation across European, national, institutional and team levels. This will result in increased research productivity, quality, reproducibility and excellence. To achieve these goals, EOSC brings together the European Commission, the governments of the Member states and Associated Countries (MS/AC) and many stakeholders involved in the European Research Area to collaborate in its co-creation process.

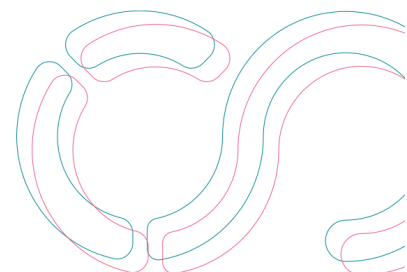
EOSC is envisioned as a federation of distributed systems, combined into a system of systems, consisting of multiple 'EOSC Nodes' (hereafter referred to as Nodes) that are interconnected and can collaborate to share and manage information and resources within and across thematic and geographical research communities.

Nodes meet at least the following requirements:

- Nodes act as the legal representative that can interact with EOSC's governance structure regarding each resource in the Node.
- Nodes provide entry points for users to access the full EOSC Federation. Establishing a Node allows a community to formalise its role as an entry point to the EOSC Federation, and from there EOSC's federated structure would allow users to exploit resources from across the federation.

Many established Research Infrastructures are already federated, distributed systems, and these systems will continue to exist and serve their primary user communities. The different parts of these distributed systems (sometimes also called nodes) may choose to register themselves as one or more EOSC Nodes in order to interact with and participate in the EOSC Federation, enabling them to share resources with other EOSC communities and leverage common services.

¹ collectively the digital objects and the related services are referred to as "resources"



EOSC Nodes share some common characteristics, including:

Collaboration: Nodes in the EOSC Federation enable collaboration to achieve common goals. This involves sharing information and experience, coordinating activities such as development, or combining resources to complete tasks. This benefits users (including clinicians, citizen and private sector scientists, etc.) by making more services and resources available, and by increasing the number of ways users can exploit those resources to reach their own objectives. The operation of the Nodes and the EOSC Federation should be transparent to users.

Governance: A governance structure is established at the EOSC Federation level to determine federation policies including the inclusion/exclusion of Nodes. There are basic policies, rules of participation as well as technical profiles and standards at the EOSC Federation level that apply to all Nodes. These rules are defined by the legal entity governing the EOSC Federation and are intended to maximise the possibility of additional Nodes joining the EOSC Federation, while at the same time assuring minimum levels of quality, interoperability and consistency (of the user experience).

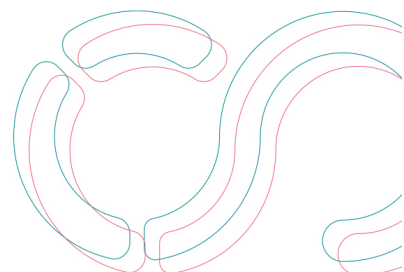
Autonomy: A Node has a degree of autonomy so it may operate independently to perform specific tasks or functions. There may be Node specific policies that vary from one Node to another (while remaining consistent with the policies at the federation level). For example, access policies may differ between Nodes. A Node ensures that all applicable policies are enforced and monitored for the resources within the Node. Within a Node, the entities legally responsible for any resource retain control over their own operations.

Interconnectivity: Nodes offer interfaces that respect the EOSC Interoperability Framework. Nodes can be connected to one another through a network, enabling them to communicate and exchange data or information. Information about a Node and its resources should be visible to the whole EOSC Federation via its inclusion in the EOSC Resource Catalogue along with the required information.

Resources: All Nodes contain resources that should be valuable to EOSC users, and by extension, to the EOSC Federation as a whole. The services may be of a technical nature (i.e. allow to perform actions on data) but may also include training services, skills and expertise such as centres of competence.

Scalability: The EOSC Federation can be scaled by adding new Nodes that adhere to the federation-level policies allowing for flexibility in accommodating changing workloads, requirements or capacity.

Heterogeneity: Nodes in the EOSC Federation can vary in the collection of resources to which they provide access and the infrastructure on which they are built.





The EOSC Federation model is enabled by the EOSC Interoperability Framework (EOSC IF), which defines the interfaces to interconnect EOSC resources and would be expanded to address interactions between EOSC Nodes.

Initiatives (European, national, regional, institutional or thematic) may join the EOSC Federation and become EOSC Nodes when they meet with the requirements for EOSC Nodes, are able to share resources with other EOSC Nodes in compliance with the EOSC Interoperability Framework and EOSC policies. Through the EOSC Federation of Nodes, users can find and access additional resources in addition to those found in their usual environment.

EOSC Association AISBL

Rue du Luxembourg 3, BE-1000 Brussels, Belgium
+32 2 537 73 18 | info@eosc.eu | www.eosc.eu
Reg. number: 0755 723 931 | VAT number: BE0755 723 931

