EOSC Future

EOSC-IF

EOSC Helpdesk: Architecture and Interoperability Guidelines

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EOSC-IF / Helpdesk Architecture and Interoperability Guidelines

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This version is to be reviewed by EOSC Interoperability Area Chairs

Dissemination Level of the Document

Public

Abstract

The EOSC Helpdesk https://eosc-helpdesk.eosc-portal.eu is the entry point and ticketing system/request tracker for issues concerning the available EOSC services. It implements incident and service request management and provides efficient communication channels between users and providers of the IT resources and services. The EOSC Helpdesk provides several capabilities, which were identified during requirement analysis, such as self-service, reporting and notifications; it helps ensure the integrity of the IT infrastructure and quality of the delivered services. In the EOSC Future project, the Helpdesk is implemented as a distributed multi-tenant system that can be used for efficient support of the EOSC-Core Technical Platform and the EOSC-Exchange services. The EOSC Helpdesk is offered to EOSC Providers as a service to enable dedicated support for users of their services. To achieve this goal, the EOSC Helpdesk supports different levels of integration with Helpdesk components, described in the section High-level Service Architecture.

This EOSC-Core Interoperability Guideline is intended for the technical experts of service and resource providers that would like their services and/or resources to be interoperable or integrate with EOSC Core Services.

Version History

Version	Date	Authors/Contributors	Description
V0.1	15.06.2021	Pavel Weber (KIT)	Initiation – Proposed ToC – First draft
V0.2	2.09.2021	Pavel Weber (KIT)	Table of adopted standards added
V0.3	10.11.2021	Pavel Weber (KIT)	Integration Options added
V0.4	3.03.2022	Pavel Weber (KIT)	Input parameters for integration options added
V0.5	15.05.2022	Pavel Weber (KIT)	Integration procedure added
V0.6	10.10.2022	Michelle Williams (GEANT)	Enhancements and review
V 0.7	23.10.2022	Pavel Weber (KIT)	Changes in helpdesk offerings, general update of the document
V 0.9	09.11.2022	Pavel Weber (KIT) and Michelle Williams (GEANT)	Finalisation of document for EIAC review.

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Glossary

EOSC Future project Glossary is incorporated by reference: https://wiki.eoscfuture.eu/x/JQCK

Note for authors of EOSC-Core Interoperability Guidelines:

1 Intended Audience

The audience for EOSC-Core Interoperability Guidelines is the technical experts of service and resource providers that would like their services and/or resources to be interoperable or integrate with EOSC Core Services.

2 Description and main features

The EOSC Helpdesk https://eosc-helpdesk.eosc-portal.eu is the entry point and ticketing system/request tracker for issues concerning the available EOSC services. It implements incident and service request management and provides efficient communication channels between users and providers of the IT resources and services. The EOSC Helpdesk provides several capabilities, which were identified during requirement analysis, such as self-service, reporting and notifications; it helps ensure the integrity of the IT infrastructure and quality of the delivered services. In the EOSC Future project, the Helpdesk is implemented as a distributed multi-tenant system that can be used for efficient support of the EOSC-Core Technical Platform and the EOSC-Exchange services. The EOSC Helpdesk is offered to EOSC Providers as a service to enable dedicated support for users of their services. To achieve this goal, the EOSC Helpdesk supports different levels of integration with Helpdesk components, described in the section High-level Service Architecture.

3 Response to Community Need

EOSC Helpdesk provides a helpdesk service with implementation options ranging from simple utilisation of the helpdesk as a web-based service to full integration with third-party helpdesk solutions that can be utilised by providers for the operation of service request management and incident management processes. The EOSC Helpdesk service enables fine-grained definition of distinct support groups, allowing each provider to establish and access support groups only for its own services. Similarly, a Provider of a Service can define sub-components of that Service, along with different support groups for each sub-component, enabling the tracking of the incidents specifically for each sub-component. Guidelines for further customisation of the EOSC Helpdesk workflows and implementation of custom notification management systems are under development.

4 High-level Service Architecture

Figure 1 shows the high-level technical architecture being implemented for EOSC Helpdesk as part of the EOSC platform as a whole. The main component is the Helpdesk Back Office that implements the core functionality of the service: ticket management, user role management, management of the support groups, automatic workflows etc. The Helpdesk main portal provides the UI for both users and helpdesk agents, search functionality based on Elasticsearch engine, reporting and statistics dashboards. It also provides self-service functions like a knowledge base and a search engine for common and resolved known issues and problems, integration with other helpdesks and is being successfully utilised by e-infrastructures and reseearch communities as a Helpdesk as a Service tool, as indicated in Figure 1.

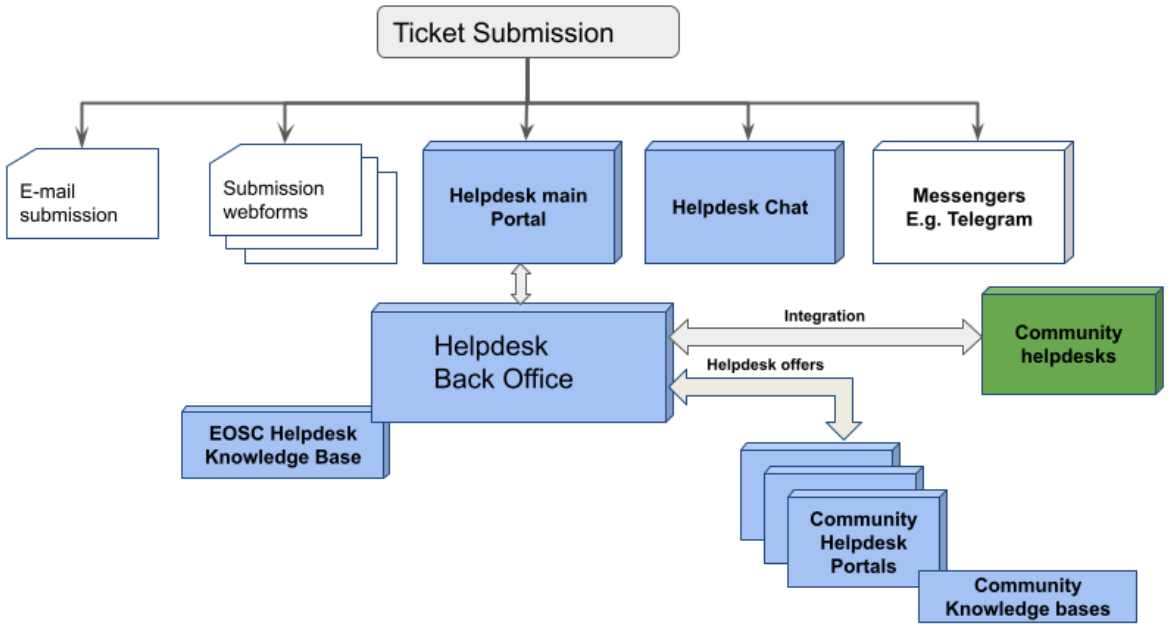

Figure 1: High Level Architecture of the Helpdesk in the EOSC platform

Figure 1 illustrates the EOSC Helpdesk service in its capability of offering a helpdesk service to Providers.

The Helpdesk Back Office is integrated with multiple components as depicted on Figure 1: High Level Architecture of the Helpdesk in the EOSC platform above, :

- **Submission webforms:** the integration will provide ready to use webforms to be embedded on the a Provider's website that will allow its users to easily submit requests and incident reports without needing to log into the helpdesk itself. This is made available to providers as a ready-to-use javascript snippet will be provided upon request for adding it to the web page and enable webform submission.
- **E-Mail submission:** Providers can interoperate withthe helpdesk by specifying a mailbox address that can be offered to users for the purpopse of submitting requests or incident reports via e-mail.
- **Integration with 3rd-party helpdesk software:** integration allows bi-directional synchronisation of user requests and incident reports, where tickets can be created in EOSC Helpdesk for further processing in the integrated helpdesk.
- **Provider-branded (white label) Helpdesk Portals:** in the future it will be possible to utilise a portal that can be branded and hosted under community domains together with dedicated community knowledge bases (functionality to be implemented in 2023).
- the EOSC Helpdesk is integrated with the EOSC AAI to enable access to the EOSC Helpdesk for EOSC users and agents. The integration with the EOSC AAI has been performed based on SAML protocol.

The EOSC Helpdesk is based on the open-source helpdesk software Zammad. It provides a powerful REST API for integration with other services.

5 Definitions

Table 1: Definitions

Term	Definition
Agent	An agent is a person who resolves incoming requests to the helpdesk and manages the tickets. Depending on the role an agent could have a access to the tickets in one or multiple groups.
Provider	As defined by the EOSC Glossary; for the purposes of this document, a Provider could also be a Community.
Support group	Support group is a group of experts who provide support and assistance for defined class of incoming requests.

6 Licensing Information

EOSC Helpdesk is powered by Zammad, which is a web based open source helpdesk/customer support system with many features to manage customer communication via several channels like telephone, facebook, twitter, chat and emails. It is distributed under version 3 of the GNU AFFERO General Public License (GNU AGPLv3).

7 Related Guidelines

This table presents any guidelines that are related to the guideline being described as well as where compliance is recommended or required in order to interoperate:

Table 2: Related Guidelines

Resource Type	Title	Short Description	relatedIdentifier
EOSC Interoperability Guideline	EOSC Interoperability Guideline for AAI	Interoperability Guidelines describing policies and best practices for AAI-facilitated ineroperability	Pending formal publication
User documentation	EOSC Helpdesk documentation	EOSC Helpdesk documentation	https://eosc-helpdesk.eosc-portal.eu/help/en-us/1-eosc-helpdesk-documentation

8 Adopted Standards

This table presents a description of the main standards, protocoles, APIs, etc, that are adopted by this Interoperability Guideline and are exposed to the external world. This table includes standards that would influence the manner in which a Provider would interoperate with or integrate the service and lists them with authoritative references.

Table 3: Adopted Standards

Resource Type	Title	Short Description	relatedIdentifier
Protocol – REST API	Zammad API	A REST API is an API that conforms to the design principles of the REST, or *representational state transfer* architectural style. The Helpdesk service provides a REST API for the synchonisation of tickets.	https://docs.zammad.org/en/latest/api/intro.html

9 Integration Options

Four levels of interoperability with the EOSC Helpdesk are available, which are described below:

- **Direct usage:**
  - A provider organisation is assigned an account with a set of user roles on a multi-tenanted instance hosted by the EOSC-Core. Users at the Provider organisation can login to use the service in a dedicated area for that provider.
  - There are no technology pre-requisites for using the Helpdesk service; users will be able to log into a pre-configured browser and will receive notifications of new tickets via email. Providers are required to specify a limited amount of information that will allow configuration of the service to its requirements.
  - In this scenario the EOSC helpdesk can be used as the ticketing system for the community and their onboarded services.
- **Ticket redirection:**
  - an organisation can form an agreement with the EOSC-Core Helpdesk Service that allows the organisation to utilise the EOSC Helpdesk as first line user support. In this scenario, the EOSC helpdesk web UI is used as a contact point for the Provider's users to raise requests or incident reports, and any tickets raised will be automatically directed to a specified email address for the organisation to manage the tickets to resolution. There is no feedback loop, so tickets will be closed when they are raised with the customer organisation.
  - There are no techology pre-requisites for using the ticket redirection option; tickets are directed to the Provider using an email address specified by the Provider. Providers are required to specify a limited amount of information that will allow configuration of the service to its requirements.
  - in this scenario the EOSC helpdesk is used only as a contact point to redirect the initial request to the provider's mailing list without further integration.
- **Full integration:**
  - A provider can integrate its own Helpdesk software with the EOSC Helpdesk, which enables full synchronisation between EOSC Helpdesk by way of an API and is technology-agnostic of the Provider's Helpdesk solution. The exact integration will be determined based on multiple options and workflows.
  - The Provider will be asked to specify its mapping requirements relating to the various standard ticket attributes, such as category, priority, and so on. Refer to the procedures below.

- **Dedicated instance:** it is also possible to deploy a dedicated instance of Zammad and to integrate that with the EOSC helpdesk. This will require bilateral discussion between the Provider and the EOSC Helpdesk operator.

The Provider can choose one of the four options during the process of onboarding a new service or upon later request, via EOSC Helpdesk.

Ticket redirection is the simplest option and only requires the specification of a mailing list and set of services to trigger the redirection procedure. **Full integration** requires detailed specifications per each integrated helpdesk service and case specific integration tasks.

Direct usage requires the Provider to provide the information summarised in Table 4.

10 Interoperability Guidelines

Please note that the Interoperability Guidelines are not intended to replace instruction manuals or help documentation. For more detailed assistance please refer here: https://eosc-helpdesk.eosc-portal.eu/help/en-us/1-eosc-helpdesk-documentation

This section describes the interoperability guidelines and information which is required to enable each of integration options listed in the previous section.

10.1 Prerequesites for Direct Usage

In order to enable the **direct usage** the service provider has to specify a set of parameters which are summarised in Table 4.

Table 4: Information required to enable Direct Usage of the EOSC Helpdesk as a service.

Attribute Name	Definition	Type	Multiplicity	Required	Example
Service	Name of the resource or service to be presented to the user in the helpdesk fields	String	Multiple	Optional	B2DROP
Group	Provider's Support Group name to be created in the helpdesk	String	Multiple	Mandatory	CommunityXL1 support
Organisation	Name of the Provider organisation	String	1	Optional	CommunityA
E-mail	email associated with support group (where tickets will be directed)	String	Multiple	Optional	support@community.eu
Agent	The name of an individual that will be responsible for managing the Provider's tickets.	String	Multiple	Mandatory	Name Surname
Signature	Automatic signature to be used in the answers to the tickets	String	Multiple	Optional	Your support team

Webform	Webform required to generate ticket directly on webpage	Bool	Multiple	Optional	Webform "Feedback" with fieds: Your name: You email: Subject: Message:

This minimum set of the attributes is required for the initial setup of the EOSC Helpdesk support groups for the new provider. Some of these attributes will be used in the ticket form for assignment of service, group and owner as shown in Figure 2.

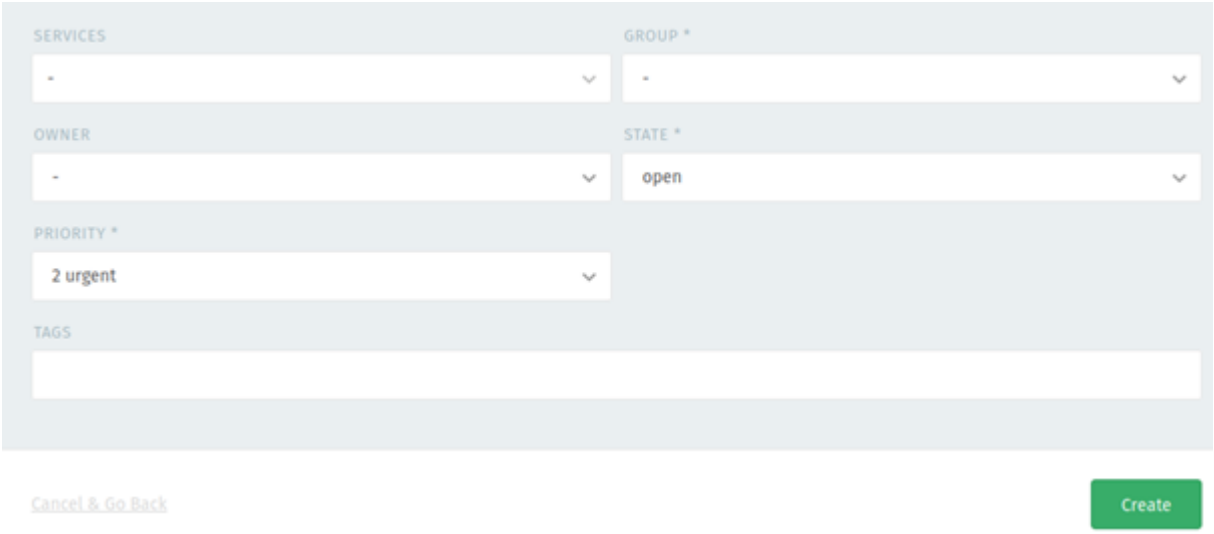

Figure 2: Ticket form in the EOSC Helpdesk.

EOSC Helpdesk enables fine-grained definition of distinct support units, allowing each provider to establish and access support units only for its own services. For example, the list of the support units depicted in Figure 3 will be visible to EOSC Helpdesk agents and supporters but not to others that are not involved in the support of these services.

Similarly, a Provider of a Service can define sub-components of that Service, along with different support units for each sub-component, enabling the tracking of the incidents specifically for each sub-component.

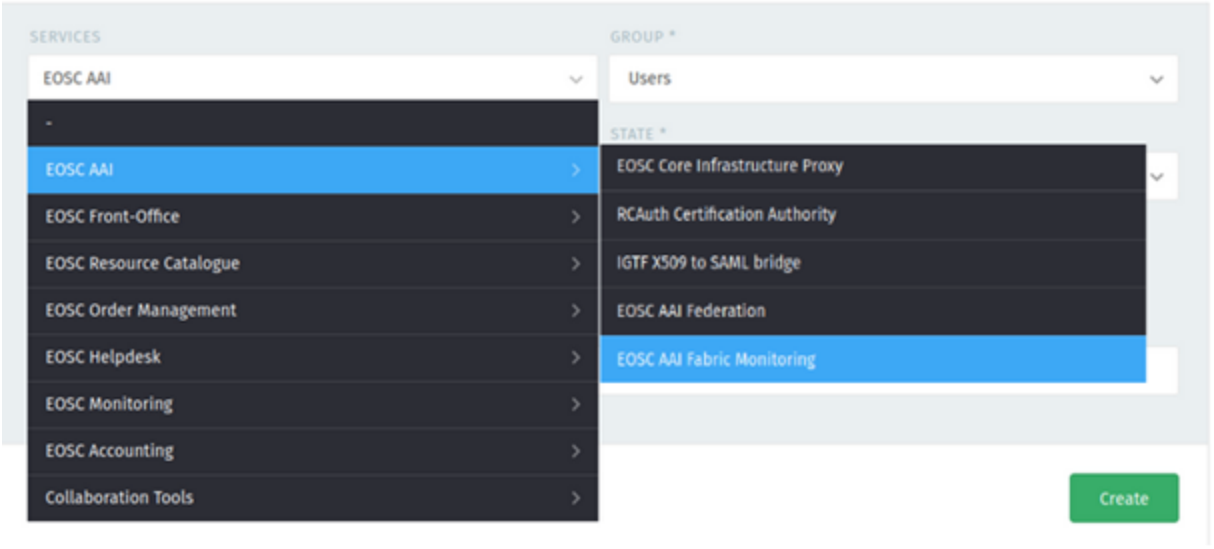

Figure 3: EOSC-Core Services and service components assignment in the EOSC Helpdesk.

10.2 Prerequisites for Ticket Redirection

In order to enable the **ticket redirection** option the service provider or the community has to provide a list of attributes listed in Table 5:

Table 5: Information required to enable Ticket Redirection to any community email address for further processing

Attribute Name	Definition	Type	Multiplicity	Required	Example
Service	Name of the resource or service to be presented to the user in the helpdesk fields	String	Multiple	Optional	B2DROP
Organisation	Name of organisation	String	1	Optional	CommunityA
E-mail	email for the purposes of ticket redirection, (this will bypass the EOSC Helpdesk L1 support)	String	Multiple	Mandatory	support@community.eu
Ticket preservation	Provider to specify whether the tickets be stored in the helpdesk system in a dedicated group	Bool	1	Optional	Yes/No
Webform	Webform required to generate ticket directly on webpage The example of the webform https://eosc-portal.eu/contact-us	Bool	1	Optional	Yes/No

10.3 Prerequisites for Full Integration with EOSC Helpdesk

In order to enable **full intergration** option the service provider or the community has to provide a list of attributes listed in Table 6:

Table 6: Information required to enable Full Integration of the EOSC Helpdesk.

Attribute Name	Definition	Type	Multiplicity	Required	Example
Provider's helpdesk URL	The web address of the provider's instance to be integrated with EOSC Helpdesk	String	1	Mandatory	Helpdesk.community.eu
Technology of Provider's helpdesk	The technology and software of the helpdesk instance	String	1	Mandatory	OTRS Community Version 6
REST API	If the helpdesk supports REST API. The support of the REST API is the prerequisite to perform the full integration	Bool	1	Mandatory	Yes/No
Group	Support group to be created in the EOSC helpdesk. The tickets created in this group will be syncronized with providers' helpdesk	String	1	Mandatory	CommunityXL1 support
Mapping scheme	The scheme defines which fields of the providers helpdesk to be syncronized	String	Multiple	Mandatory	
Public comment	Field provided by EOSC Helpdesk which stores the answer in the ticket, visible for requester for syncronization. The answer Yes/No means that provider would like to syncronize with this field	Bool	1	Mandatory	Yes/No
Private note	Field provided by EOSC Helpdesk which stores the answer in the ticket, not visible for requester for syncronization. The answer Yes/No means that provider would like to syncronize with this field	Bool	1	Mandatory	Yes/No
Ticket state	Ticket states in the provider's helpdesk to be	String	Multiple	Mandatory	

	mapped to EOSC Helpdesk ticket states which are: new open pending close pending customer Reply pending reminder Close				
Ticket type	Ticket types in the provider's helpdesk to be mapped to EOSC Helpdesk ticket types which are: Incident Requirement Service Request	String	Multiple	Mandatory	
Organisation	Name of organisation	String	1	Optional	CommunityA

10.4 Guidelines for implementing a Dedicated Instance

Providers that would prefer to install their own dedicated instance of Zammad and integrate that with the EOSC helpdesk, should refer to the documentation available here: https://docs.zammad.org/en/latest/install/package.html.

After installation of the instance we offer a possibility to connect it via API with EOSC Helpdesk according to the providers' requirements.

In this scenario, the prerequisites for the Full Integration scenario also apply.

10.5 Integration Procedure

This section defines a high-level procedure that is followed in order to enable one of the chosen integration options listed above. The overview of the procedure and single steps is shown in Table 7:

Table 7: Integration steps

Integration Steps	Description
1. Selection of the integration option	The Provider selects the required integration option via providers dashboard helpdesk extension or by submiting a ticket directly to help@eosc-portal.eu requesting the integration option.
2. Relationship between Provider and Helpdesk attributes is defined	The Provider and EOSC Helpdesk operator agree the final parameters set (and any attribute mapping in the case of Full Integration).

3. Integration specification	Helpdesk owner prepares specification that will set out the agreed implementation design for the synchronisation, such as attribute mapping for utilisation of the API.
4. Roadmap and implementation plan	Helpdesk owner and provider agree on roadmap, implementation time and milestones for completing the integration.
5. Approval and agreement	The implementation plan and specification is finalised.
6. Implementation	The implementation is carried out
7. Validation	Testing and validation of the implementation together with helpdesk owner.

11 Examples of solutions implementing this specification

List already available Open Source services that already interoperate according to the guideline, Include references to the service web page and examples of the interoperation or integration.

Direct usage: CESSDA

10 support groups, currently 8 agents, 1st line support, separate email, separate submission form placed at CESSDA Catalogue page (link), email filters for automatic redirection, custom escalation procedures implemented.

Ticket redirection: EUDAT

A ticket allocated to the EOSC Helpdesk group "EUDAT Support" automatically redirected to EUDAT Helpdesk with: email of submitter, text, link of the ticket in the EOSC helpdesk.

Full integration: EGI/GGUS

Full synchronisation, mapping between ticket fields in GGUS and EOSC Helpdesk, when ticket moved in EOSC Helpdesk to "GGUS Support" groups that triggers creation of the ticket in GGUS and further synchronisation of ticket attributes upon updates in both systems. The closure of the ticket in one or another helpdesk systems results in the end of synchronisation (although the history is retained).

Dedicated instance: OpenAIRE (not yet fully implemented at the time of writing).