30-11-2021

Milestone M5.5 (M62)
Review and Updates of Service Roadmaps

Milestone M5.5

Abstract
The Trust and Identity Work Package (WP5) is responsible for delivering services from the T&I portfolio, including for their operations, support and further development. This milestone presents an update of the Trust & Identity service roadmaps published in M5.2 and M5.4, focusing on the plans for service development and enhancement for the timeframe of 2021/2022.

Table of Contents

Executive Summary

This milestone defines committed and aspirational goals for the operations and deployment, enhancement and development roadmaps of the Trust and Identity (T&I) services delivered via the GN4-3 project's Work Package 5, for the years 2021 and 2022. The roadmaps are defined for a period of up to two years, considering inputs from the wider stakeholder community, particularly as concerns enhancements and new features. These roadmaps are subject to continual review and update, especially of aspirational goals. This milestone document is the second update of the service roadmaps first published for the years 2019 and 2020 as Milestone M5.2 and subsequently updated for the years 2020 and 2021 as Milestone M5.4. These roadmaps are also intended as indicative material for use by the Partner Relations, Outreach and Business Development team in Task 4 of this Work Package, to ensure the appropriate message about the service plans is communicated to the stakeholder community.

1   Introduction

The Trust and Identity Work Package (WP5) is responsible for the innovation and development of T&I services, their operations and support, as well as for driving T&I services towards the anticipated maturity levels. From an operational perspective, WP5 ensures that T&I services in production are operated efficiently and securely, reach the required availability and quality levels, with relevant procedures and documentation in place, and provide the appropriate level of support. Services operations and support are performed as daily activities, following an agile approach with regard to implementing improvements to processes and resources employed. The development of new features or major enhancements to services is performed according to the requirements gathered from the stakeholders, and plans are based on the available resources and prioritisation.

Services that are currently in the T&I portfolio are: eduroam, eduGAIN, eduTEAMS, and InAcademia. Each service has an appointed service owner, who is responsible and accountable for the delivery of the service as a whole and for defining the service roadmaps. Service teams are internally organised to deliver operations, development and support functions for the services. For the new eduTEAMS and InAcademia services, an agile approach is followed. This entails short sprints to frequently release software enhancements that address stakeholders' requirements. The agile approach also requires a tighter integration between development, operation (hence the involvement of the DevOps team) and support teams. For eduGAIN and eduroam, operational and development teams work closely together to use their full potential to ensure smooth transition and continuous integration (development) for further service enhancement and deployment of new features.

This document summarises the roadmaps for T&I services for 2021/2022 and provides an update to the roadmaps for 2020/2021 (Milestone M5.4). The purpose of these roadmaps is to define the timeline of further development and enhancement of the T&I services. They contain both committed and aspirational goals, and their content will be subject to ongoing evaluation and updates, based on the progress made and available resources.

During the course of the project, periodic consultations with the stakeholder communities are held in order to further inform and provide input for the roadmaps. Although, due to COVID-19 restrictions, all planned face-to-face T&I events in 2021 were cancelled, regular consultations and information-sharing sessions were held with services stakeholders and governance committees, and these were taken into consideration when devising future plans. In addition, the following events with feedback relevant to the services roadmaps took place in 2021:

- eduGAIN F-Ticks pilot infoshare, January 2021 [eduGAIN_Infoshare].
- InAcademia: Workshop for National Research and Education Networks (NRENs) and Federation Operators, February 2021 [InAcademia_Workshop].
- Trust and Identity updates and strategy consultation, June 2021 [T&I_Consult].

- Seamless Access Workshop, June 2021 [SA_Workshops].
- T&I Incubator Demo, June 2021 [T&I_Inc_Demo].

Complementary to these service roadmaps, Task 2 (Incubator) in this Work Package is tasked with exploring new ideas or potentially disruptive T&I technologies that are considered sufficiently mature within the project technology readiness level (TRL) constraints. The Incubator is operating within predefined development cycles, after each of which the results of individual activities may be used by the service teams, therefore providing another input for the service roadmaps. The methodology and plans for the work of the Incubator in Task 2 were published in Milestone M5.3 *Incubator Methodology and Plans* [M5.3] and the Incubator results are published in the Incubator dashboard [Inc_Dash].

Through the work of this Work Package, the GN4-3 project participates in and follows other global initiatives in the domain of Trust and Identity, including:

- SeamlessAccess project, aimed at optimising protocols across key stakeholder groups, with the goal of facilitating a seamless user experience for consumers of scientific communication. GÉANT participates in the Coalition for Seamless Access, together with other organisations such as STM [STM] and NISO [NISO], by providing operational capabilities, product manager and technical lead.
- Projects that expand the reach of eduGAIN to support student mobility use cases as well as to enable the usage of electronic Identification and Trust Services (eIDAS), such as MyAcademicID. These activities are carried out in close liaison with key members of WP5 and their results will inform the development of eduGAIN beyond 2021.
- Several other relevant initiatives and projects (such as the EOSC-hub Technical Committee and the EOSC-hub Architecture Work Package, WISE community, REFEDS, IGTF) in which key members of WP5 participate and report back to WP5 via the Enabling Communities Task (WP5 Task 4) to ensure ongoing liaison and collaboration with these bodies.
- AARC-related activity. With the end of the AARC2 project, WP5 will continue to support some of the work to maintain and update the AARC architecture and policy results and participate in the AEGIS group, which brings together international e-infrastructures that implement the AARC BPA.

The following sections provide a summary of the T&I services delivered by Work Package 5, followed by the service roadmaps.

2 eduroam

Service Owner: Paul Dekkers (SURF)

eduroam is a worldwide roaming access service for the international research and education community [eduroam]. GÉANT coordinates eduroam's worldwide operations, operates the European core infrastructure and a number of supporting services for global use, and provides the relevant support. These services include:

- European Top-Level Radius servers in the Netherlands and Denmark.
- Monitoring, Diagnostics and Metering tools [Monitor].
- Database [DB].
- Configuration Assistant Tool [CAT].
- Managed eduroam IdP service [Host].

GÉANT also works on the further development and enhancement of eduroam with the objective of increasing ease of deployment for institutions and national roaming operators (NROs), improving user experience for end users, and ensuring that the quality of eduroam national deployments is as prescribed in the eduroam service definition.

The 2021/2022 roadmap for eduroam **operations, support and deployment of enhancements** for the GN4-3 project focuses on the following areas:

- **eduroam Database Version 2.0**

    The eduroam database is a key element of the supporting infrastructure. It serves as the central, authoritative collection of data about the institutions (NROs, service providers (SPs) and identity providers (IdPs) participating in the eduroam service. It provides input to other services such as CAT and eduroam Managed IdP [eduManIdP], and is the source of data for building the eduroam service locations map, etc. Version 2.0 of the database specification implements various improvements and introduces new features such as the ability to mark areas covered by eduroam's wireless signal.

    Migration from the previous eduroam database to v2.0 was completed in 2020. Following this, in 2021, maintenance of the eduroam database v2.0 became part of continuous operations activities. There are no further development plans for 2022 other than continuous maintenance.

- **eduroam Audit**

    With eduroam now being provided in more than 100 countries by thousands of IdPs and SPs, the time is right to introduce an auditing system to regularly check whether participating

organisations are following eduroam policies and recommendations. The audit system will promote those who are implementing eduroam according to the current best practices, and at the same time warn those who are providing a substandard level of service. The eduroam audit will be developed as a combination of manual and automated tests, run partly by the eduroam operations team and partly as self-service assessment that will enable participating organisations to evaluate their deployments against the policies and best practices.

Drafting of the audit procedure and preparation of the associated tooling was finalised in 2021. Planning is ongoing to pilot it with the European NRENs and, based on this, to obtain approval for the procedure from the eduroam Steering Group (SG) and Global eduroam Governance Committee (GeGC). This procedure will then be used to establish a yearly programme of eduroam audits, supporting NROs to step up to the eduroam baseline.

- **eduroam Policy Update**

  The eduroam service definition and policy are specified by documents originally drawn up in 2008. The last review of these documents was in 2012, and since then there have been changes in both technology and organisational aspects that require them to be updated again.

  In 2021, drafts of updated European and global eduroam policies were prepared by the eduroam team. Next, during 2022, it is planned to organise a consultation with the eduroam SG and GeGC, after which the policy suite will be updated.

- **Continuous Operations, Deployment of Enhancements, Support and Engagement**

  The eduroam team will continue to operate eduroam core and supporting services, manage NRO membership for Europe and provide global support via official support channels. It will work on enhancing operational processes and resources in an agile manner. eduroam db v2.0 and end-user diagnostics will move to continuous operations. Work to support new NROs to join the eduroam service will continue in collaboration with the GÉANT partner relations, global outreach and business development teams. The GÉANT Learning and Development team (GLAD), in collaboration with the eduroam team, which will provide its specialised expertise, will support the community by delivering eduroam training and learning materials on request. Engagement with NROs, the wider community, standardisation bodies and the industry will continue via participation in the European Confederation eduroam Steering Group (SG) and Global eduroam Governance Committee (GeGC) and through contribution to global standards and/or R&E community profiles.

The roadmap for eduroam **development** for years 2021/2022 of the GN4-3 project focuses on the following areas:

- **eduroam Managed Service Provider (SP)**

  eduroam Managed SP is being developed with the goal of doing away with the complexity of operating an eduroam RADIUS server for service providers. eduroam Managed SP is a multi-level, multi-tenant system operated by the eduroam operations team. It allows the creation of an eduroam SP without the deployer requiring any knowledge of the eduroam architecture.

  During 2021, preparations for a pilot service were finalised, with a Product Lifecycle Management (PLM) approval gate taking place. By the end of 2021 it is planned to prepare for the launch of the service and to run the pilot during 2022. In the last quarter of 2022 it is

planned to evaluate the success of the eduroam Managed SP pilot and to determine plans for service production.

- **OpenRoaming**

  Run by the Wireless Broadband Alliance (WBA), OpenRoaming is an industry initiative that embraces the Wi-Fi federation concept pioneered by eduroam. In 2020, GÉANT joined the WBA in order to influence developments and assure that these are compatible with eduroam. Industry implementation of OpenRoaming would allow eduroam to interfederate with other Wi-Fi providers, expanding the footprint of eduroam to cover locations that are not strictly related to R&E institutions.

  In 2021 initial design and testing to enable eduroam interoperability with OpenRoaming were carried out, and trials with interested NROs were run. Following the trials, future plans are being defined that will determine the work for the remainder of 2022.

- **geteduroam**

  The geteduroam apps were developed within the eduroam community for simple and secure Wi-Fi configuration of user devices. Integration work was performed to ensure all configuration profiles from eduroam CAT are available inside the geteduroam apps; this makes the geteduroam apps usable for all identity providers in eduroam. Use of the geteduroam app was promoted in 2021, and used within eduroam CAT for recent versions of Android devices. In 2022 the team will continue to work with the geteduroam apps to improve the installers in eduroam CAT and the onboarding experience for users.

  The geteduroam apps also contain the ability to configure device-specific eduroam profiles, called "pseudo-credentials" as they are not the actual user credentials but are derived from web-based authentication via eduGAIN. This activity enables the use of eduroam for IdPs that are part of eduGAIN but do not have the proper RADIUS infrastructure available on campus. In 2021, an evaluation was started to integrate this service as a centralised supporting service under eduroam operations, complementing the existing options from CAT and Managed IdP. The evaluation will continue in 2022, and further plans will be defined accordingly.

- **Certificate Provisioning Redesign**

  The current eduPKI certificate provisioning that is used to enable RadSec deployments has proved to be a heavy and unscalable solution for the global eduroam community. The WP5 team aims to redesign the process so that it will provide a simple click-through browser experience to issue certificates. It will also perform semi-automated eligibility checks, exploiting data structures of the official eduroam database, and issue certificates in near-real-time using the eduPKI SOAP API.

  In 2021 the new system is being tested, with a view to deploying it in CAT in 2022. Following this, the activity will move to maintenance as part of continuous operations, and new work will start to define a successor RadSec PKI.

- **eduroam Diagnostics**

  The main goal of this activity is to bring the monitoring and diagnostics tools as close to the end-user experience as possible. The team combines the data acquired via the eduroam database, current monitoring and measurement services with other supporting tools, such as

CAT. This is complemented by the design and development of monitoring probes that verify the health of the eduroam service at individual service locations.

During 2021, results of eduroam db v2.0 were integrated within eduroam CAT. The solution was evaluated and it was concluded that it can move to continuous operations in 2022.

- **radsecproxy Development**

    radsecproxy is a generic RADIUS proxy that supports TLS (RadSec) RADIUS transport. radsecproxy is used by NROs, service providers and identity providers that want to introduce RadSec capability on top of their existing RADIUS infrastructure, increasing security and efficiency for transport of RADIUS traffic.

    The roadmap for 2021/2022 was prioritised to complete two minor releases and one major release.

- **Continuous Service Improvements**

    eduroam supporting services use solutions developed in-house. These require maintenance through continuous development and enhancement to the tooling and software, which will be delivered in an agile manner.

The timeline for the eduroam roadmap is available online [Roadmaps].

3   eduGAIN

Service Owner: Davide Vaghetti (GAAR)

eduGAIN is one of GÉANT's key Trust and Identity services, allowing trusted digital identities to be used to securely access available web resources [eduGAIN]. GÉANT operates a number of core and supporting global-level services, and also provides the relevant support. These services include:

- Metadata Service (MDS) [MDS].
- Metadata Validator [Validator].
- Technical site, including various tools and status information [Tech].
- Entities database [Entities].
- Federation as a Service (FaaS).

GÉANT also works on the further development and enhancement of eduGAIN with the objective of improving ease of deployment for institutions and identity federations, enhancing user experience and ensuring that identity federations are operating in accordance with the defined eduGAIN profiles and best practices. This work also scales the service for future demands in terms of quality, usability, security and growth.

The 2021/2022 roadmap for eduGAIN **operations, support and deployment of enhancements** for the GN4-3 project focuses on the following areas:

- **eduGAIN Operations**

    In 2021, testing of eduGAIN metadata signing with Hardware Security Module (HSM) facilities provided by SUNET was successfully completed. Planning for a new signing key generation ceremony has started.

    In 2021/2022 it is planned for the eduGAIN metadata signing key generation ceremony to take place and to implement a new signing process using HSM.

    In 2021 the eduGAIN operations team assessed the status of the eduGAIN core services in order to define an update plan that will be executed in 2022. The plan covers the update of the components of the core services in terms of platforms and tools as well as improvements to the management and documentation of the services. More specifically, the development process will be moved to the GÉANT GitLab, which will be used to manage issues, requests and the evolution of the services.

- **eduGAIN Support**

    eduGAIN Support handles enquiries that are addressed to support@edugain.org. To monitor compliance with the eduGAIN profiles, Support also works in a proactive manner, reacting to errors and warnings that are identified by various eduGAIN checking tools. In 2020/2021,

eduGAIN Support continued to improve documentation by providing public-facing support documentation.

In 2021/2022 it is planned to continue to improve the support documentation and to define an eduGAIN Support member training programme. In collaboration with the eduGAIN operations team it is planned to extend the eduGAIN Validator to cover support use cases.

- **eduGAIN Security**

The role of the security team is to provide a central point of contact and coordination when addressing inter-federation security incidents, and to act in a proactive manner to address security threats. In 2020/2021, the eduGAIN security incident response handbook was created in collaboration with the REFEDS Sirtfi working group. In addition, work started on defining the eduGAIN Terms of Reference and expectations of eduGAIN CSIRT in an RFC 2350 format [RFC2350].

In 2021/2022 it is planned to finalise the two above-mentioned documents and to establish the eduGAIN CSIRT. Furthermore it is planned to promote and support the adoption of the security best practices for the federated environment, run a communication challenge for the federations security contacts, and plan and run an inter-federated security incident simulation.

- **eduGAIN Training**

In 2020/2021 a dedicated training team and a close collaboration with the GÉANT Learning and Development team (GLAD) were established. This team works on creating eduGAIN training modules and is available to deliver trainings on a request basis.

In 2021/2022 it is planned to continue delivering eduGAIN training based on request. eduGAIN training for the African region is in preparation, in collaboration with UbuntuNet. The training material developed so far will be published as a set of learning materials on federated identity and eduGAIN. To gather the needs for future training, it is planned to run a community consultation. The training programmes and plans will be updated according to feedback received.

- **Continuous Operations, Support and Deployment of Enhancements, Support and Engagement**

The eduGAIN team will continue to operate eduGAIN core and supporting services as well as FaaS and SeamlessAccess, manage identity federation membership of eduGAIN and provide support via an official support channel. It will work on enhancing operational processes and resources in an agile manner. Work on supporting new identity federations to join the eduGAIN service will continue, in collaboration with the eduGAIN secretariat and the GÉANT partner relations, global outreach and business development teams.

Engagement with identity federations and the wider community will be continued via participation in the eduGAIN Steering Group (SG) and the activities of REFEDS, AEGIS, FIM4L, FIM4R, CACTI, etc. More specifically, the eduGAIN service will collaborate with the REFEDS working groups to maintain and develop all the policy frameworks relevant to eduGAIN, such as the GÉANT Code of Conduct Version 2, the Research and Scholarship Entity Category and Sirtfi. The eduGAIN service will also engage with the OpenID Connect community through participation in the activities of the OIDF Research and Education working group.

The 2021/2022 roadmap for eduGAIN **development** for the GN4-3 project focuses on the following areas:

- **F-ticks for eduGAIN**

  Authentication statistics and measurements enabled via the eduGAIN interfederation provide important metrics for quantifying and understanding the service's usage and patterns. This is necessary to fully comprehend eduGAIN's value and drive further improvements.

  In 2020/2021 it was planned to run the service in accordance with the adoption plan and in 2022 to evaluate the participation level, which will determine future service provision. The reports from eduGAIN F-ticks will be integrated into the eduGAIN Reporting tool.

- **eduGAIN Reporting**

  In 2020/2021 the eduGAIN Reporting tool was handed over from the T&I Incubator (Task 2) to a dedicated development team for eduGAIN Reporting.

  In 2021/2022 it is planned to complete the minimum viable product (MVP) for eduGAIN Reporting and to move the tool to production.

- **PushMDQ**

  The current eduGAIN metadata distribution solution provides a stable and reliable way to distribute metadata. However, this solution relies on predefined regular intervals for collecting and redistributing metadata feeds, with the consequence that propagating changes in metadata are not instantaneous. The T&I Incubator Task has explored the idea of pushing metadata changes and a technical proof of concept was delivered.

  In 2021/2022 it is planned to prepare a testbed deployment and to run the testbed with the support of the community. Further plans will be defined following the evaluation of the testbed results.

The timeline for the eduGAIN roadmap is available online [Roadmaps].

Over the course of 2021/2022, additional items may be added to the roadmap, based on the available resources in the eduGAIN team. Such items may include input from the Incubator Task and from REFEDS.

4   eduTEAMS

Service Owner: Christos Kanellopoulos (GÉANT Association)

The eduTEAMS service enables research and education communities to securely access and share common resources and services [eduTEAMS]. Leveraging the ubiquitous presence of eduGAIN federated identities, eduTEAMS enables communities to securely authenticate and identify their users, organise them in groups, assign them roles and centrally manage access rights for using community resources. As research is not confined to research institutes and universities, eduTEAMS also caters for users coming from the industry or citizen scientists who may not have access to eduGAIN.

At the beginning of the GN4-3 project, eduTEAMS was still a new service, therefore work has focused on ensuring the service's adoption by the R&E communities. In 2020 and 2021, this yielded great results, with eduTEAMS uptake skyrocketing within research communities. The technical development of the eduTEAMS service is driven by the priorities of the early-adopter communities, and is done in an agile manner, following ongoing updates of the technical development roadmap.

The roadmap for eduTEAMS for 2021/2022 focuses on the following areas:

- **Service Adoption and Business Development**
  Continue the work with various R&E communities, HPC infrastructure and NRENs who are adopting eduTEAMS. At the time of writing, eduTEAMS works with a number of research communities, including:
  - EOSC-Life (Life Sciences).
  - PaNOSC/UmbrellaID (Photon and Neutron Community).
  - NextGEOSS (Earth Sciences).
  - Fenix (HPC RI).
  - PRACE.
  - LUMI/Puhuri (EuroHPC).
  - EUROFusion.
  - SSHOC (Social Sciences and Humanities).
  - VESPA (Europlanet Society).
  - LAGO (Astroparticle Physics).
  - SURF on their Research Access Management platform, which is the first national deployment for eduTEAMS.

  The plan is to continue active engagement with these R&E communities and support them in using eduTEAMS offerings.

- **Technical Development**

  It is planned to continue the development of new features, such as:

  - **Improvement of the onboarding and management processes for relying services**. A self-service management portal for the relying services will be designed and developed. It will enable authorised users to directly manage the services connected to the eduTEAMS deployments without requiring the involvement of the eduTEAMS DevOps team.

  - **Support for IdP hinting**. IdP hinting enables relying services to signal the preferred IdP for authenticating a user in the authentication request. This capability will allow the relying services to drive the IdP discovery process and bypass the eduTEAMS IdP discovery UI when that is needed.

  - **Enhanced consent module**. The consent module will be enhanced to include better support for OpenID Connect and OAuth2 scopes.

  - **Support for device code flow in the OIDC frontend**. The device code flow enables users to log in from public clients that run on devices such as mobile phones or computer terminals, where access to a browser agent is not possible.

  - **Migration to a containerised environment for all the eduTEAMS components**. Leveraging containers allows the operational team to package the eduTEAMS components in containers, separating the dependency resolution for packages from the deployment time and adding an abstraction layer between the underlying VM infrastructure and the eduTEAMS components.

  Since eduTEAMS employs an agile approach to development, the development roadmap is also frequently updated [eduTEAMS_roadmap].

- **Continuous Operations and Support**

  Operate the service and provide support on a daily basis. The plan is to scale up the operational team and resources so that they are able to operate and deploy new eduTEAMS instances for dedicated and bespoke service offerings.

5 InAcademia

InAcademia is a service that allows online retailers and services not connected to an identity federation and eduGAIN the means to easily validate if a customer is a student or is affiliated to an educational institute in another way. For user authentication, InAcademia uses the identity providers available in eduGAIN. In 2019 a business pilot took place for the first merchants to use the service, and in February 2020 the production service was launched. The development of InAcademia follows a strongly agile approach that utilises short sprints to frequently release software enhancements that address stakeholders' requirements.

The roadmap for InAcademia for 2021/2022 focuses on the following areas:

- **Service Status**

  During 2020/2021 the service started exploiting its production potential: 7 identity federations started to use the InAcademia service within their constituency and four services were onboarded to use InAcademia student validations, among which were big aggregators of student offerings. The InAcademia Steering Committee was fully constituted with representatives from 7 identity federations and GÉANT. In 2021, InAcademia reached two important milestones with regard to the number of validations: 100K validations within a single month (August 2021) and 1M validations within a single calendar year (measured in November 2021).

- **Service Development**

  The service team will:

  ○ Work to expand InAcademia into additional countries, working alongside federation operators to ensure maximum value is created for them.

  ○ Provide advisory and secretariat functions for the InAcademia Steering Committee. The Steering Committee ensures that the service is developed for the benefit of the federated identity community.

  ○ Continue ongoing engagement with identity federations and merchants in order to register them for use of the Community and Commercial Editions.

  ○ Continue to provide operational feedback to the federation operators in relation to any operational issues discovered with in-scope IdPs, working with IdP and federation administrators to achieve positive results.

- **Technical Development**

  During the remainder of 2021 and in 2022, the focus will be on providing a stable service with minimal need for physical and human interaction for many of the currently manual administrative processes. Further development work will include:

- ○ Code and process optimisation.

- ○ An enhanced discovery service.

- ○ Enhanced registration and onboarding capabilities.

- ○ Preparation of support and procedure for enhanced registration and onboarding processes, including self-service models and improved UX.

- **Continuous Operations and Support**

  Continue the operations and support for the production service.

The timeline for the InAcademia roadmap is available online [Roadmaps].

6 Conclusions

This document is an update of the T&I services roadmaps first defined in Milestone 5.2 for the period 2019/2020 and updated in Milestone M5.4 for the period 2020/2021, and it presents the current position on T&I services delivery and evolution for 2021/2022. It also demonstrates how T&I service delivery is supported by other teams in the GÉANT project. These roadmaps will be periodically reviewed and updated to keep track of goals, and to add inputs from the WP5 Incubator activity and requirements from the community via planned consultation activities.

References

[CAT]	https://cat.eduroam.org
[DB]	https://monitor.eduroam.org/db_web
[eduGAIN]	https://edugain.org/
[eduGAIN_Infoshare]	https://events.geant.org/event/465/
[eduroam]	https://www.eduroam.org/
[eduManIdP]	https://www.eduroam.org/eduroam-managed-idp/
[eduTEAMS]	https://www.geant.org/Services/Trust_identity_and_security/Pages/eduTEAMS.aspx
[eduTEAMS_roadmap]	https://trello.com/b/71wU60QV/eduteams-roadmap
[Entities]	https://technical.edugain.org/entities
[Host]	https://hosted.eduroam.org
[InAcademia]	https://inacademia.org/
[InAcademia_Workshop]	https://events.geant.org/event/464/
[Inc_Dash]	https://wiki.geant.org/display/gn43wp5/Incubator+Dashboard
[M5.2]	https://www.geant.org/Resources/Documents/M5-2_Service-Roadmaps.pdf
[M5.3]	https://wiki.geant.org/display/gn43wp5/T&I+Incubator+Methodology [access required]
[M5.4]	https://www.geant.org/Resources/Documents/M5-4_Review-and-Updates-of-Service-Roadmaps%20(1).pdf
[MDS]	mds.edugain.org
[Monitor]	https://monitor.eduroam.org
[NISO]	https://www.niso.org/
[RFC2350]	https://datatracker.ietf.org/doc/html/rfc2350
[Roadmaps]	https://wiki.geant.org/display/gn43wp5/Trust+and+Identity+Services+Roadmaps
[SA_Workshops]	https://events.geant.org/event/756/; https://events.geant.org/event/757/
[STM]	https://www.stm-assoc.org/
[T&I_Consult]	https://events.geant.org/event/656/
[T&I_Inc_Demo]	https://events.geant.org/event/463/
[Tech]	https://technical.edugain.org
[Validator]	validator.edugain.org

Glossary

AARC	Authentication and Authorisation for Research and Collaboration
AARC BPA	AARC Blueprint Architecture
AEGIS	AARC Engagement Group for Infrastructures
API	Application Programming Interface
CACTI	Community Architecture Committee for Trust and Identity
CAT	Configuration Assistant Tool
CSIRT	Computer Security Incident Response Team
eIDAS	electronic Identification and Trust Services
EOSC	European Open Science Cloud
FaaS	Federation as a Service
FIM4L	Federated Identity Management for Libraries
FIM4R	Federated Identity Management for Research
GDPR	General Data Protection Regulation
GeGC	Global eduroam Governance Committee
GLAD	GÉANT Learning and Development Team
GN4-3	GÉANT Network 4 Phase 3
HPC	High-Performance Computing
HSM	Hardware Security Module
IdP	Identity Provider
IETF	Internet Engineering Task Force
IGTF	Interoperable Global Trust Federation
LAGO	Latin American Giant Observatory
MVP	Minimum Viable Product
NREN	National Research and Education Network
NRO	National Roaming Operator
OIDC	OpenID Connect
OIDF	OpenID Foundation
PaNOSC	Photon and Neutron Open Science Cloud
PKI	Public Key Infrastructure
PLM	Product Lifecycle Management
PRACE	Partnership for Advanced Computing in Europe
R&E	Research and Education
RADIUS	Remote Authentication Dial-In User Service
RadSec	RADIUS over TLS
REFEDS	Research and Education Federations group
RFC	Request for Comments (IETF)
RI	Research Infrastructure
SG	Steering Group
Sirtfi	Security Incident Response Trust Framework for Federated Identity

SOAP	Simple Object Access Protocol
SP	Service Provider
SSHOC	Social Sciences & Humanities Open Cloud
T&I	Trust and Identity
TLS	Transport Layer Security
TRL	Technology Readiness Level
UI	User Interface
UX	User Experience
VESPA	Virtual European Solar and Planetary Access
VM	Virtual Machine
WBA	Wireless Broadband Alliance
WISE	Wise Information Security for Collaborating e-Infrastructures
WP	Work Package
WP5	Work Package 5 Trust and Identity
WP5 Task 2	Work Package 5 Task 2 Incubator
WP5 Task 4	Work Package 5 Task 4 Enabling Communities