



Registry Design-Time Requirements v3

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Abstract

This document provides a detailed technical view of the SWIM Registry. It describes the registry in terms of capabilities, user roles, operational scenarios, functionality, interfaces and the full set of requirements associated to these. It also provides a reference registry data model (i.e. how to structure the storage of information in the registry), a set of user interface wireframes (i.e. how to present the information to the user), and a set of taxonomies (i.e. a common method of classifying information in the registry). The scope of this document is limited to the so called "design time registry". Hence its primary focus is to support 1) the implementation of services by providing service design guidance (standards and policies), 2) the discovery of planned/implemented services and 3) the implementation of consuming systems providing information on how to interface with a registered service. The registry contains design information that is rather static and target those persons involved in the implementation of services/interfaces

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Executive summary

The SWIM registry aims at improving the visibility and accessibility of ATM information and services available through SWIM. It enables service providers, consumers, and the swim governance to share a common view on SWIM.

The SWIM registry provides consolidated information on services that have been implemented based on SWIM standards. It stores structured descriptions that facilitate the discovery and comparability of services. The registry also provides a consolidated list of standards and policies required for the implementation of SWIM compliant services.

The SWIM registry enables direct ATM business benefits to its stakeholders by:

- Allowing providers (mainly those sharing information over SWIM) to increase visibility (and consequent adoption) of their services. It will also support them in discovering and managing their dependencies with other services, standards and policies.
- Improving the efficiency of consumers (mainly those getting information from other stakeholders over SWIM) in identifying the most appropriated service and its provider.
- Enables the communication and ultimately adoption of standards and policies. It also supports SWIM governance by providing a consolidated view on the adoption of these.

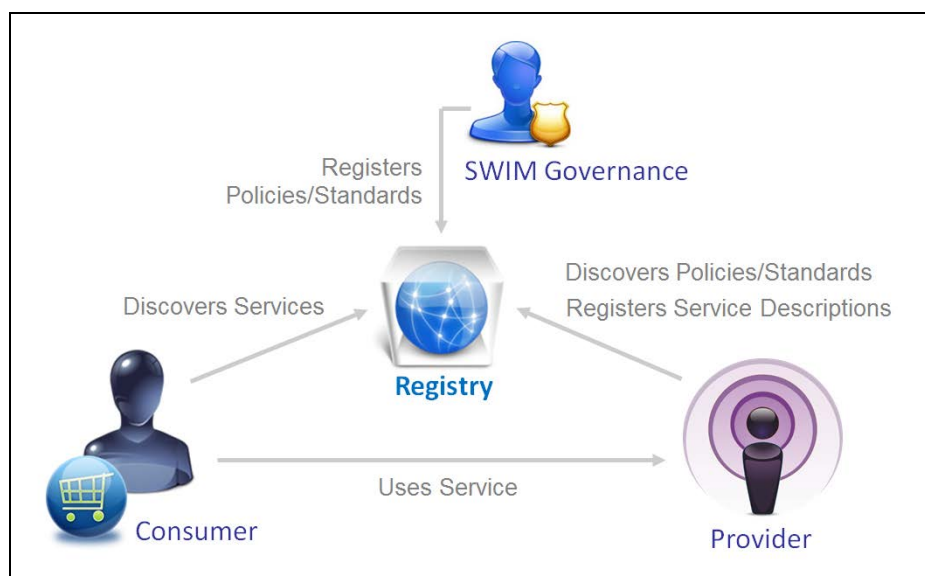


Figure 1: Interaction between the different stakeholders of the registry

As depicted above, the registry enables the “provider” to “publish” information related to its services so that the “consumer” is able to “discover” them and obtain what is required (e.g. interface information, access request procedure) to “use” those services. The “SWIM Governance” uses the registry to influence the implementation of services in SWIM with the publication of policies and standards.

The scope of this document is limited to the so called “design time registry”. Hence its primary focus is to support 1) the implementation of services by providing service design guidance (standards and policies), 2) the discovery of planned/implemented services and 3) the implementation of consuming systems providing information on how to interface with a registered service. The registry contains design information that is rather static and target those persons involved in the implementation of services/interfaces

1 Introduction

1.1 Purpose of the document

This document provides a detailed technical view of the SWIM Registry. It describes the registry in terms of capabilities (section 2.3), user roles (section 2.4), operational scenarios (section 2.5), functionality (section 2.6), interfaces (section 2.7) and the full set of requirements associated to these. It also provides a reference registry data model (i.e. how to structure the storage of information in the registry), a set of user interface wireframes (i.e. how to present the information to the user), and a set of taxonomies (i.e. a common method of classifying information in the registry).

This document builds upon the SWIM Registry ConOps that provides a higher level view of the registry.

Its scope is limited to the so called “design time registry”. Hence its primary focus is to support 1) the implementation of services by providing service design guidance (standards and policies), 2) the discovery of planned/implemented services and 3) the implementation of consuming systems providing information on how to interface with a registered service. The registry contains design information that is rather static and target those persons involved in the implementation of services/interfaces

1.2 Intended readership

Considering the registry is a SWIM common component that provides visibility to standards produced by both WP8 and WP14, it is expected this document to be of interest to any contributor of these projects.

1.3 Inputs from other projects

This document is produced by dedicated members of P8.1.1 and reviewed by those represented at the SWIM Expert Management Group (SEMG).

1.4 Structure of the document

The SWIM Registry technical specifications are described in this document in full alignment with the SJU TS template. Hence the document has two main sections:

- Section 2 providing a general overview to the SWIM Registry in terms of capabilities, user roles, operational scenarios, functionality and service interfaces.
- Section 3 describing exhaustively the requirements for the SWIM Registry.

1.5 Functional block Purpose

SESAR follows a service oriented approach as stated in the master plan, and the registry is a consequence of that. The registry supports the deployment and governance of SWIM contributing to achieve a number of benefits:

- **Reduced System Implementation Effort**
The registry provides a consolidated point of access to service information. This improves the efficiency to discover ATM services and implementation reference resources.
- **Enhanced collaboration based on visibility and trust**

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The registry improves visibility and quality of service resources based on its controlled registration process. This increases trust and facilitates the creation of new collaborations among SWIM stakeholders (that exchange information via services).

- **Efficient and coordinated evolution**
The registry facilitates managing the lifecycle of services, standards and policies supporting versioning and the management of dependencies. This facilitates the coordinated evolution of systems and standards.
- **Oversight (Support to governance)**
The registry enables to maintain a consolidated view of services and their conformance to standards, and policies.
- **Flexibility**
The registry improves flexibility as it acts as the encounter point between service providers and consumers. This reduces point to point communications and facilitates the implementation of loosely coupled systems.

1.6 Functional block Overview

The SWIM Registry is a directory of information that supports the discovery and implementation of services. The Registry uses a formal registration process to store, catalogue and manage metadata describing service implementations, and the related governance standards and policies.



Figure 2: Registry Overview

The registry stores service related information that becomes available to the registry users based on the discovery capabilities of the registry. The information is stored in the registry based on a controlled registration process. Both discovery and registration are functions provided by the registry via its interface, allowing the storage and retrieval of service related information. The main users of the registry are the 1) service providers that discover the standards and policies required for the implementation of services and register their service implementations, the 2) SWIM governance that steers service implementation with standards and policies that are made available in the registry, and the 3) service consumers that identify suitable services for consumption in the registry.

1.7 Acronyms and Terminology

| Term | Definition |
|--------|--|
| ATM | Air Traffic Management |
| E-ATMS | European Air Traffic Management System |

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| Term | Definition |
|---------------------------|--|
| IM Functions | Information Management Functions |
| iSWIM | initial SWIM |
| SEMG | SWIM Evolution Management Group |
| SESAR | Single European Sky ATM Research Programme |
| SJU | SESAR Joint Undertaking (Agency of the European Commission) |
| SJU Work Programme | The programme which addresses all activities of the SESAR Joint Undertaking Agency. |
| SESAR Programme | The programme which defines the Research and Development activities and Projects for the SJU. |
| SWIM Services | SWIM Services are comprised of SWIM Common Infrastructure Services and SWIM Information Services. |
| SWIM Providers | Are providers of any SWIM capability (e.g. common infrastructure components, information service instances, ...) |
| SWIM TI | SWIM Technical Infrastructure |
| SWIM Reference | Any descriptive artefact (e.g. specifications document) that is proposed by the SWIM governance to be used as a guiding reference in the implementation of SWIM. |

2 General Functional block Description

2.1 Context

The SWIM registry aims at improving the visibility and accessibility of ATM information and services available through SWIM. It enables service providers, consumers, and the swim governance to share a common view on SWIM.

The *registry stores service related information* that becomes available to the registry users based on the discovery capabilities of the registry. The information is stored in the registry based on a controlled registration process. Both discovery and registration are functions provided by the registry via its interface, allowing the storage and retrieval of service related information. The main users of the registry are the 1) service providers that discover the standards and policies required for the implementation of services and register their service implementations, the 2) SWIM governance that oversees the compliance of service implementations with standards and policies that are made available in the registry, and the 3) service consumers that identify suitable services for consumption in the registry.

When information (e.g. standards) is already published at another location the registry will just store a reference to it.

The SWIM registry enables direct ATM business benefits to its stakeholders by:

- Allowing providers (mainly those sharing information over SWIM) to increase visibility (and consequent adoption) of their services. It will also support them in discovering and managing their dependencies with other services, standards and policies.
- Improving the efficiency of consumers (mainly those getting information from other stakeholders over SWIM) in identifying the most appropriated service and its provider.
- Enables the communication and ultimately adoption of standards and policies. It also supports SWIM governance by providing a consolidated view on the adoption of these.

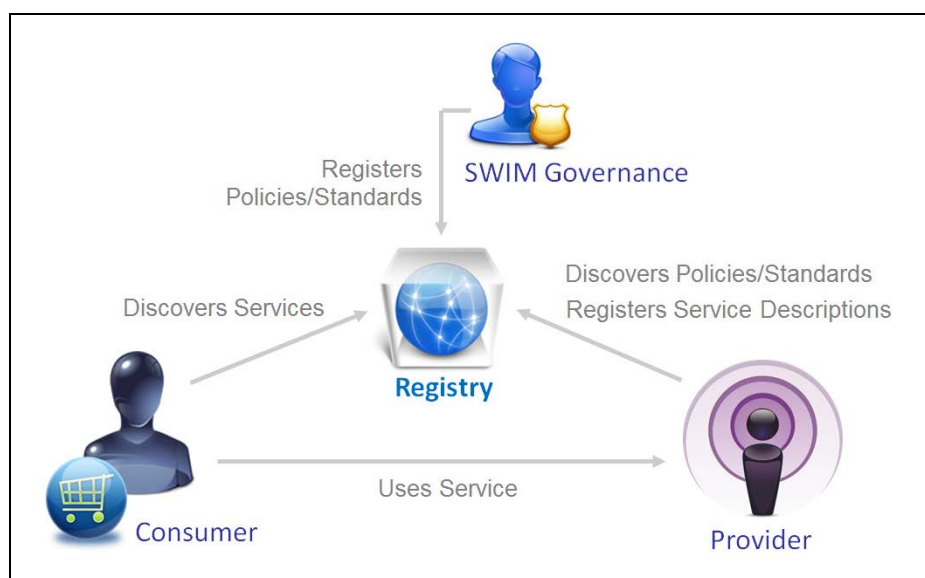


Figure 3: Interaction between the different stakeholders of the registry

As depicted above, the registry enables the “provider” to “publish” information related to its services so that the “consumer” is able to “discover” them and obtain what is required (e.g. interface information, access request procedure) to “use” those services. The “SWIM Governance” uses the registry to influence the implementation of services in SWIM with the publication of policies and standards.

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2.1.1 Registry Content

The Registry supports the discovery of service implementation resources in SWIM. It stores information that describes service implementations and reference resources provided by the SWIM governance to steer the deployment of services (i.e. Standards, Policies). The information stored in the registry is structured according to the registry information model.

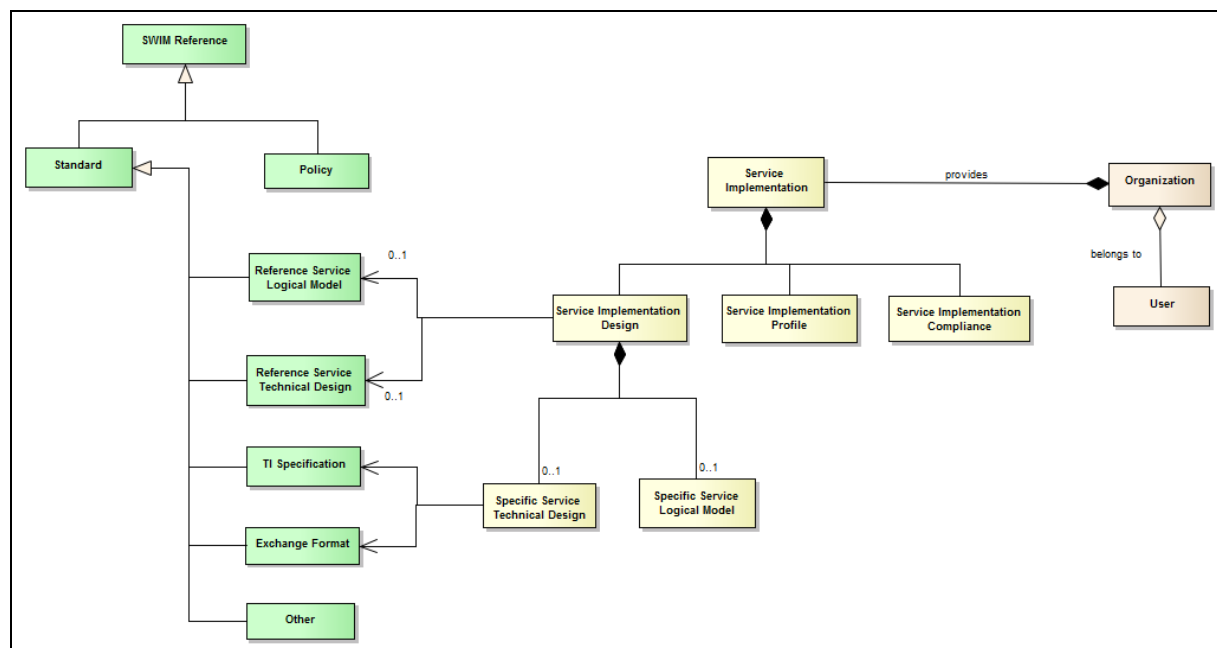


Figure 4: Registry Information Model - High Level View

The primary information elements described in the registry are:

- **Service Implementations.** It is described in the registry the services implemented by service providers in SWIM including: service functionality, ATM Context, implementation maturity, interoperability requirements, service qualities, available support, constraints and accessibility requirements. The information is divided in three categories:
 - Design information (has an impact on interoperability)
 - Profile information that describes the service in terms of capabilities and provision aspects (e.g. contractual information). It helps consumers identify the fit of the service and the non-technical aspects of the service.
 - Compliance information captures information that determines the degree of alignment to SWIM criteria (i.e. compliance level)
- **Standards.** It is described in the registry the reference standards that guide the implementation of SWIM (e.g. Service Logical Models, Infrastructure Profiles). The description of standards includes: scope of applicability, publishing organization and source. Specific descriptions might be required for SESAR produced standards e.g. ISRM, TI Specifications and AIRM. The following standards have been identified for registration:
- **Service Implementation Policies.** It is described the policies applicable to SWIM service implementations.

The registry stores additional supporting information elements that are required to facilitate the discovery, consistency and accessibility of the main elements described above:

- **Registry Users.** It is described in the registry the users that have a personal account in the registry. This enables the implementation of access controls, personalization, and the traceability of actions to individual persons.
- **Organizations.** It is described in the registry the organizations that have users or specific content in the registry (e.g. Service Providers). It enables to reflect the ownership and responsibility of a specific information element to a legal entity. It enables to group content by organization facilitating its discovery and keeping its consistency of data in the registry, as well as to enable the efficient implementation of access controls based on organization privileges.

In addition to the information elements described above there is relational information that describes the dependencies between these elements:

- **Service Provision.** It is described the relationship between an organization (service provider) and the service implementations it provides.
- **Service Standardization.** It is described the relationship between a service and the standards it implements.
- **Service Regulation.** It is described the relationship between a service and the policies it conforms with.
- **Service Dependency.** It is described the relationship between services.
- **Registry Taxonomy.** It is described the relationship between a registered item in the registry and a category of information.

The registry does not intend to duplicate information available in other systems, its objective is only to store the minimum information required to facilitate discovery, identification and comparison between resources. When it comes to documents, the registry prefers linking to external content if available.

2.2 Functional block Modes and States

This document describes the registry as stateless and does not make distinction between different modes or states.

2.3 Major Functional block Capabilities

2.3.1 Registration

The registration capability enables the controlled and structured registration of resources in the registry. It implies:

- Controlled process registration enables to distinguish steps in the registration of resources allowing validation and approvals by a governance actor.
- Capturing structured descriptions of registered resources that are categorized based on a common registry taxonomy that facilitates the discovery and comparability of resources.

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2.3.2 Discovery

The discovery capability of the registry enables to identify registered resources, obtain their descriptions, identify related resources and follow up their evolution. It implies:

- Search of registered resources enables to look for resource descriptions that match specific criteria that can be formulated based on 1) Resource Properties and 2) Resource Categorization
- Subscription to registered resources enables users to follow up content changes in the registry that receive notifications when there are changes related to 1) a particular resource, 2) a category of resource (e.g. Flight related) 3) a type of resource (e.g. standard).
- Highlight reporting enables users to get a quick view to registry information and its evolution based on graphical representations that summarize registry content (e.g. chart on most popular/recent content, number of resources per ATM domain)

2.4 User Characteristics

A user is either a person or system that interacts directly with the registry. Users have an account in the registry that uniquely identifies them and distinguishes them from other users.

User roles are related to the role of their organizations. These are described in the Registry ConOps document in section 5.2. (i.e. SWIM Stakeholder, Service Provider, Registry Specifications Manager, Registry Operations Manager)

Users of the registry will have different interests and responsibilities (requiring different functionality/access rights) that can be grouped into the following roles:

- Registry Member: It is a role associated to a person member of a SWIM Stakeholder with interest in registry information in general.
- Service Provider Administrator: It is a role associated to a person member of a service provider that has the responsibility to register services for his organization.
- Reference Administrator: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance registers the reference material in the registry (e.g. Service Models, SWIM Compliance Requirements).
- Service Registration Administrator: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance validates the registrations of service implementations.
- Service Compliance Administrator: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance registers the results of a service compliance assessment.
- Registry Support Administrator: It is a role associated to a person member of the registry operations manager that acts as the point of contact to support registry users. It manages access control lists as well as registry related communications.
- Service Designer. It is a role associated to a person member of a SWIM Stakeholder organization that contributes with Service Design Information to the registry.
- Service Verification Manager. It is a role associated to a person member of SWIM Governance that specialises in registering verified services.

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2.5 Operational Scenarios

As identified in the registry ConOps document, there are six different operational scenarios (i.e. use cases) that are supported by the registry.

| Use Case | Description |
|---|---|
| Service Implementation Registration | The service provider registers a description of a service implementation |
| Service Implementation Compliance Assessment | The service compliance administrator registers the compliance level of a service implementation |
| Service Implementation Compliance Declaration | The service provider registers compliance evidences of a service implementation |
| Service Implementation Discovery | The registry members browse information in the registry concerning service implementations |
| SWIM Reference Registration | The SWIM reference administrator registers reference material (standards, policies) |
| SWIM Reference Discovery | The registry members browse information in the registry concerning the SWIM reference |

2.5.1 Service Implementation Registration

It enables the service provider to register a description of a service implementation. This enables to create or modify service implementation descriptions in the registry. As a result of a modification, a service description can be deprecated..

| | |
|------------------------|---|
| <i>Actors</i> | Service Provider, Service Registration Administrator |
| <i>Trigger</i> | A service provider: <ul style="list-style-type: none"> Creates a new entry in the registry for a service implementation. Modifies an existing service implementation description in the registry. |
| <i>Pre-Conditions</i> | <ul style="list-style-type: none"> The service provider organization is registered The registry member that triggers the action is member of the service provider |
| <i>Post-Conditions</i> | <p>The registry is updated with a new service implementation description.</p> <p>The service implementation description gets status updated based on the <u>Service Implementation Registration Process</u></p> |
| <i>Process</i> | <p><u>Service Implementation Registration Process</u> is a registry specific process that has the following steps:</p> <ul style="list-style-type: none"> Draft: Gets in this state with use case trigger Registration Validation: The service provider sends description for validation. |

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| | |
|--|--|
| | <ul style="list-style-type: none"> Registered: The Service Registration Administrator validates the registration. |
|--|--|

2.5.2 Service Implementation Compliance Assessment

It enables the service compliance administrator to register the compliance level of a service implementation. The scope of compliance is exclusively focused on specific design elements that describe a service implementation (e.g. Service Technical Design).

| | |
|------------------------|---|
| <i>Actors</i> | Service Compliance Administrator |
| <i>Trigger</i> | A Service Compliance Administrator updates the compliance information level for a registered service implementation. |
| <i>Pre-Conditions</i> | The service implementation is registered by the service provider |
| <i>Post-Conditions</i> | The registry is updated with a modified service implementation description. The service provider is notified via the service point of contact. |
| <i>Process</i> | The service implementation compliance assessment use case has no registry specific process associated, however it is triggered as a result of the <u>SWIM Compliance Assessment Process</u> that is external to the registry. |

2.5.3 Service Implementation Compliance Declaration

It enables the service provider to register compliance evidences for a service implementation. The scope of compliance is exclusively focused on specific design elements that describe a service implementation (e.g. Service Technical Design).

| | |
|------------------------|---|
| <i>Actors</i> | Service Provider |
| <i>Trigger</i> | A service provider updates the compliance information level for a registered service implementation. |
| <i>Pre-Conditions</i> | <ul style="list-style-type: none"> The service provider organization is registered The registry member that triggers the action is member of the service provider The service implementation is registered |
| <i>Post-Conditions</i> | The registry is updated with a modified service implementation description. |
| <i>Process</i> | The service implementation compliance declaration use case has no registry specific process associated, however it is related to the <u>SWIM Compliance Assessment Process</u> |

2.5.4 Service Implementation Discovery

It enables the registry members to browse information in the registry concerning service implementations

| | |
|------------------------|--|
| <i>Actors</i> | SWIM Member |
| <i>Trigger</i> | A SWIM Member queries the registry for service implementation information. |
| <i>Pre-Conditions</i> | None. |
| <i>Post-Conditions</i> | None. |
| <i>Process</i> | The SWIM Reference Registration use case has no registry specific process associated or refers to any external SWIM process. |

2.5.5 SWIM Reference Registration

It enables the reference administrator to register reference material (standards, policies).

| | |
|------------------------|---|
| <i>Actors</i> | Reference Administrator |
| <i>Trigger</i> | A SWIM Reference Administrator updates the registry with a new SWIM Reference entry. |
| <i>Pre-Conditions</i> | None. |
| <i>Post-Conditions</i> | The registry is updated with a new SWIM Reference. |
| <i>Process</i> | The SWIM Reference Registration use case has no registry specific process associated, however it is triggered as a result of the <u>SWIM Standards Management</u> process that is external to the registry. |

2.5.6 SWIM Reference Discovery

It enables the registry members to browse information in the registry concerning the SWIM reference

| | |
|------------------------|--|
| <i>Actors</i> | SWIM Member |
| <i>Trigger</i> | A SWIM Member queries the registry for SWIM Reference information. |
| <i>Pre-Conditions</i> | None. |
| <i>Post-Conditions</i> | None. |
| <i>Process</i> | The SWIM Reference Registration use case has no registry specific process associated or refers to any external SWIM process. |

2.6 Functional

2.6.1 Functional decomposition

2.6.1.1 Registration

Registration functionality enables the controlled and structured registration of resources in the registry. It includes:

- Registration workflows enable to impose a sequence of steps in the registration of resources allowing validation and approvals by a governance actor.
- Information forms enable to capture structured description of resources.
- Versioning enables to capture different versions of the same resource helping identify differences.
- Categorization enables to classify resources based on a common registry taxonomy that facilitates the discovery and comparability of resources.
- Import of resource description files enables to map and store the structured description of the resource file in the data structures of the registry.

2.6.1.1.1 Registration workflows

Information stored in the registry follows a controlled registration process. There are two main types of information in the registry attending to the registration process:

- Service Implementation Information: Different processes (workflows) are required to register:
 - Service Implementation Descriptions. Information that describes the service.
 - Service Implementation Compliance. Information that describes how the service meets the SWIM Governance criteria.

Both have a similar number of steps.

| Step | Description |
|------------|--|
| Drafting | The information is being updated by the owner. |
| Validation | The information is considered final by the owner and the Service Registration Administrator is validating it. |
| Registered | The information is considered validated by the Service Registration Administrator and is effectively registered. |

The registration of SWIM compliance information for a service (i.e. compliance level) depends on a process external to the registry that determines the agreed level of compliance for a service. The SWIM Registry administrator just reflects the result of this governance process in the registry.

- Reference Information (Standards, Policies): This information is registered directly by the Reference Registration Administrator. This is limited to updating the registry and depends on

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an external process to the registry that determines when a new standard/policy needs to be registered.

Below it is provided an example of interface that shows the different steps required for the registration of a service.

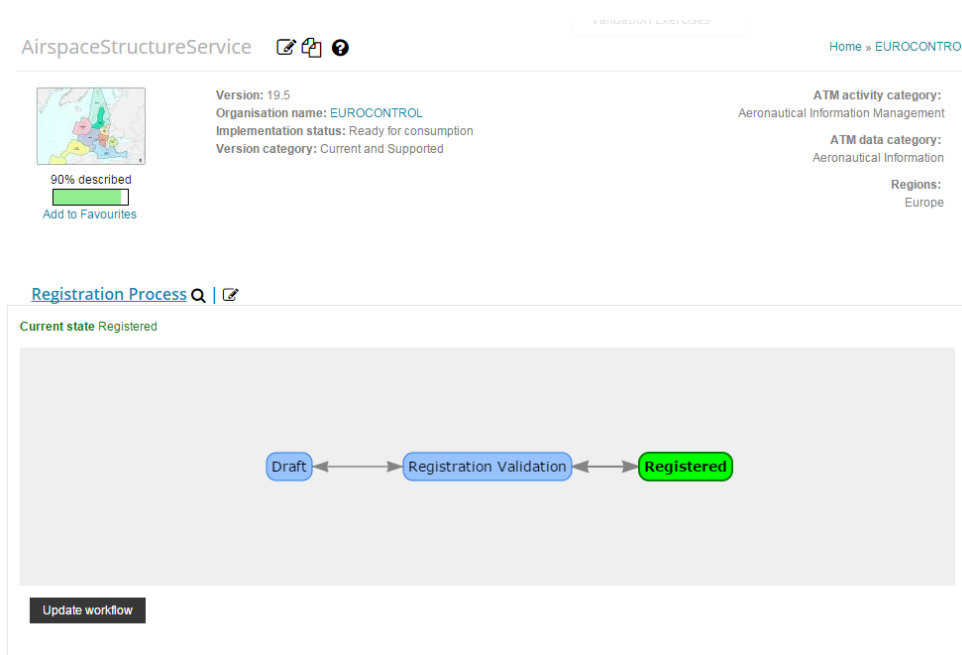


Figure 5: Registry Workflow Functionality

For each step it can be defined a set of tasks that the must be completed before progressing to the next step.

2.6.1.1.2 Information Forms

Information forms enable to capture structured description of resources.

Below it is provided an example of interface that would enable to capture a structured description of service information. It is basically a form that enables the editor to provide a value for each of the properties that describe the resource.



Figure 6: Registry Publication Functionality

The registration forms will allow importing source descriptions that can contain properties of the following type:

- Text
- Multiple choice values
- Numbers
- Links to other web resources
- Links to other registry resources
- Pictures
- Attachments

2.6.1.1.3 Versioning

The registry should allow the management of versions, this would enable to:

- Store multiple versions of the same artefact
- Compare versions of an artefact to identify what has changed.

2.6.1.1.4 Categorization

Categorization enables to classify resources based on a common registry taxonomy that facilitates the discovery and comparability of resources.

Below it is provided an example of interface that shows the taxonomy values of a service implementation. Taxonomies provide a concrete set of values that the owner selects from when registering a resource.

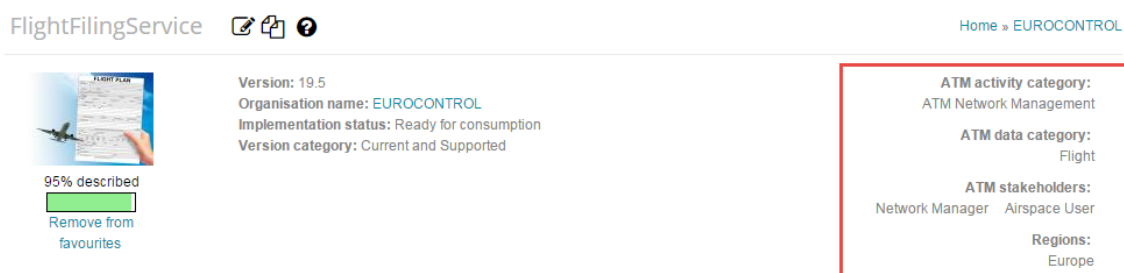


Figure 7: Registry Categorization Functionality

A set of taxonomies has been identified and is available in the annexes of this document. See appendix III.

2.6.1.1.5 Import of resource description files

The import of resource description files enables to store the structured description of resources into the data structures of the registry.

Service Logical Model Import:

This enables the Reference Administrator to register a Service Logical Model (SLM) in the registry.

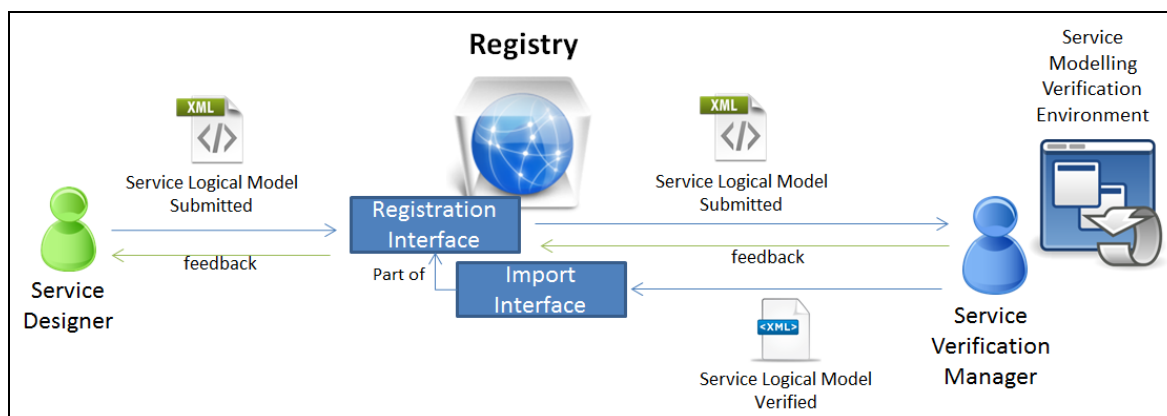


Figure 8: Registry Service Models Import

The registration of service logical models via the import interface requires the following steps:

- The service logical model submitted by the designer of a service is registered in order to formalize its delivery to the service verification process. No import or manipulation of the file is done at the registry level that limits its role to store this file.
- The service verification manager gets the submitted model from the registry. After the verification process has finished it is produced a file (potentially the same if it is in the same format as required by the registry) that will be imported in the registry.
- The service verification process results are registered as feedback to the service designer in the registry.
- The import of the model in the registry implies the representation of the content and structure of the file in the registry. (e.g. this will enable to identify and reference individually each of the operations of a service in the registry)
- The service logical model file that is imported in the registry has a physical data structure that is derived from the SDCM (Service Description Conceptual Model).
- The person that triggers the import process in the registry requires having the reference administrator role.

2.6.1.2 Discovery

The discovery functionality of the registry enables to identify registered resources, obtain their descriptions, identify related resources and follow up their evolution. It implies:

- Search of registered resources enables to look for resource descriptions that match specific criteria that can be formulated based on 1) Resource Properties and 2) Resource Categorization
- Subscription to registered resources enables users to follow up content changes in the registry that receive notifications when there are changes related to 1) a particular resource, 2) a category of resource (e.g. Flight related) 3) a type of resource (e.g. standard).
- Highlight reporting enables users to get a quick view to registry information and its evolution based on graphical representations that summarize registry content (e.g. chart on most popular/recent content, number of resources per ATM domain)

2.6.1.2.1 Search

Search enables to look for resource descriptions that match specific criteria that can be formulated based on:

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- Text match of resource name/description
- Taxonomy classification values (e.g. registration status, implementation maturity,..)

Below it is provided an example of interface that would enable searching for service information.

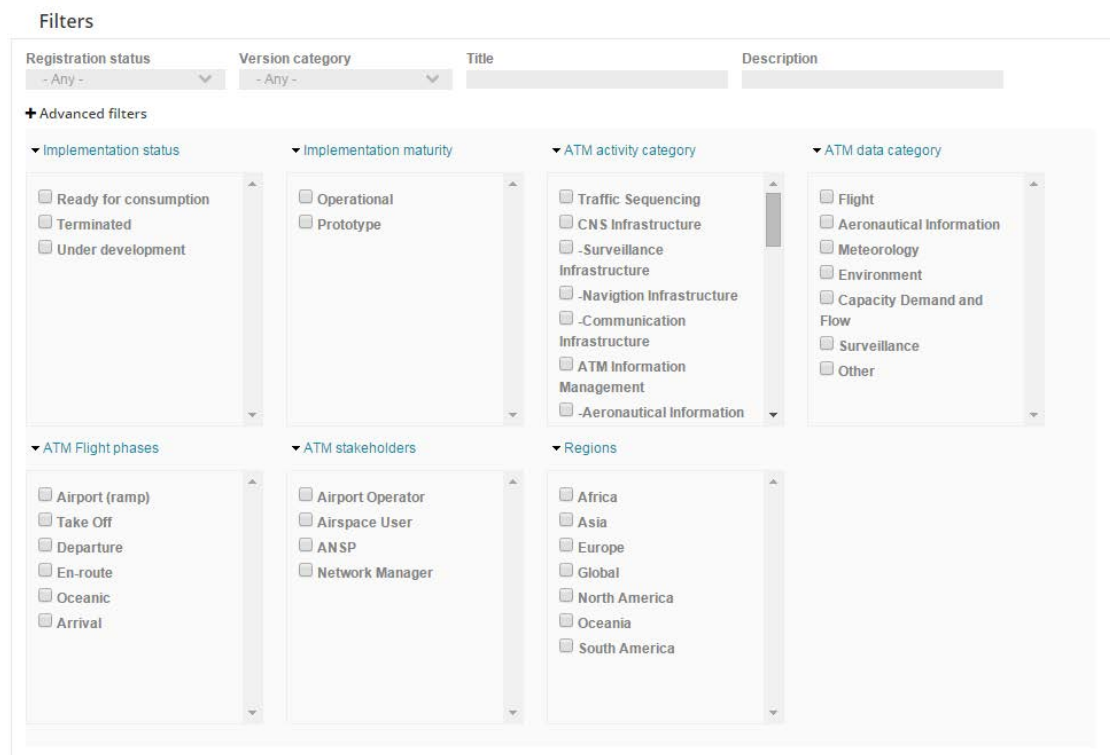


Figure 9: Registry Search Functionality

2.6.1.2.2 Subscription

Enables users to follow up content changes in the registry that receive notifications when there are changes related to:

- a particular resource,
- a category of resource (e.g. Flight related)
- a type of resource (e.g. service, standard)

The notifications provide the user with information on resources that matches the subscription category:

- When the resources is updated/created
- Are sent via email
- The user can determine the delay of notification (e.g. immediate, daily/weekly digest)

2.6.1.2.3 Highlight Reporting

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Highlight reporting enables users to get a quick view to registry information and its evolution based on graphical representations that summarize registry content (e.g. chart on most popular/recent content, number of resources per ATM domain)

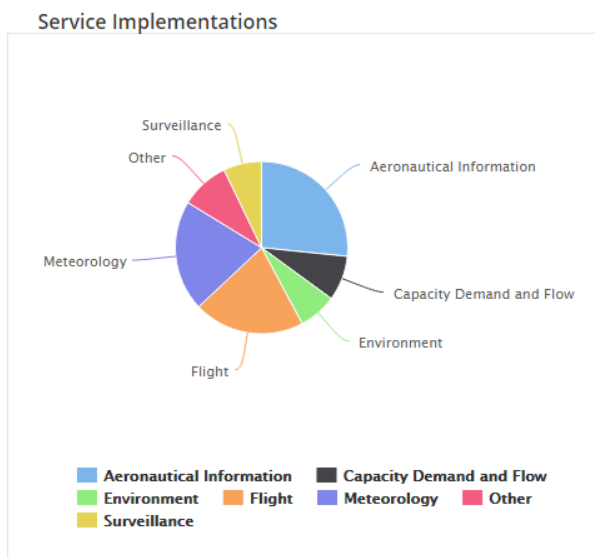


Figure 10: Registry Highlight Reporting Functionality

2.6.1.3 Security

The security measures required to protect the registry information will have to be proportionate to the criticality stated in the qualities of service chapter (2.7.2). This implies:

- **Authentication:** enables to identify users so that actions can be traced to individuals.
- **Restricted and Public areas:**
 - Registry public area enables users to access certain information in the registry without the need to authenticate. It enables to communicate with a larger community of users (e.g. news, communications, sharing partial views of content).
 - Registry restricted area; it enables to enforce access controls to information.
- **Dual zone access** enables information owners (e.g. service provider) to make a partial description of their registered resources available in the public area of the registry keeping certain information available only for authenticated users. This enables the public registry resources to have a public URL making easier being referenced (increasing the added value of the registry).
- **Organization based ownership** enables to define access control at an organization level for all the resources own by the organization. This enables to apply an efficient and consistent access control
- **Audit trails:** Enables to maintain a history of access to registry resources.
- **Encrypted Transport:** Although there is low requirements in terms of protecting the confidentiality and integrity of information, it is advisable the use of encrypted communications with the registry.

- **Captchas:** Whenever unauthenticated users are able to create content in the registry (i.e. user registration form), this should be protected by a captcha mechanism to protect against bots.

2.6.1.4 Support

The requirements listed in this section are related to the support function. They relate to the following use cases:

1. Manage lifecycle definitions
2. Taxonomies definition
3. Access Management
4. Identities registration (users, organizations)

2.6.1.4.1 Manage lifecycle definitions

The registry must be flexible in customizing and creating additional workflows as it will need to always adapt to the SWIM governance processes as they evolve.

The workflow administration functionality enables to create/modify workflows taking into account:

- A workflow is associated with a registry resource type (e.g. Service Implementation)
- A workflow is defined as a sequence of steps.
- When a resource is created, a workflow is associated in its initial step.
- A step is associated with other steps (i.e. next possible steps)
- The progression from one step to another can be restricted to users with a particular role.
- A step can have tasks associated with it.
- A task can be either complete or not.
- A done task has as properties the date and name of the person that marked the tasks as done.

2.6.1.4.2 Taxonomies definition

Categorization enables to classify resources based on a common registry taxonomy that facilitates the discovery and comparability of resources.

As taxonomies need to be adapted over time, it is required the registry to enable the efficient management of these taking into account:

- A taxonomy is defined as a hierarchy of elements
- Elements are defined by a name and description
- New elements can be added/deleted/updated

The screenshot shows a web interface for 'ATM activity category'. At the top, there are navigation tabs: LIST, EDIT, MANAGE FIELDS, MANAGE DEPENDENCIES, MANAGE DISPLAY, and TOOLS. Below the tabs, there is a breadcrumb trail: Home > Administration > Structure > Taxonomy. A '+ Add term' button is visible. A table lists various activity categories with expandable icons and an 'OPERATIONS' column containing 'edit' links. A 'Show row weights' link is also present.

| NAME | OPERATIONS |
|---------------------------------------|------------|
| + Traffic Sequencing | edit |
| + CNS Infrastructure | edit |
| + Surveillance Infrastructure | edit |
| + Navigation Infrastructure | edit |
| + Communication Infrastructure | edit |
| + ATM Information Management | edit |
| + Aeronautical Information Management | edit |
| + Flight Information Management | edit |
| + Meteorological Information | edit |

Figure 11 Registry Highlight Reporting Functionality

2.6.1.4.3 Access Management

The registry needs to authenticate users and manage the access level they have to registry resources. Access management is one of the most effort intensive activities for the administrator of the registry.

The registry support administrator is responsible for access management and shall able to:

- See a list of all registry users
- Access to update the registry roles associated with users

2.6.1.4.4 Identities registration (users, organizations)

From an identity point of view there are two types of entities that need to be described in relation to the registry:



User

This is either a person or system that interacts directly with the registry. Users have an account in the registry that uniquely identifies them and distinguishes them from other users.



Organization

This is the legal entity that groups users. All authenticated accesses to the system are done by users that belong to a SWIM stakeholder organization. Users participate in the registry as representatives of that organization.

For users to get a registry account they must apply for registration and this must be approved later on by the registry support administrator that activates their account.

The figure below provides an example of interface for user registration.

ABOUT IMPLEMENTATIONS LOG IN REGISTER CONTACT US

User account [Home » User account](#)

Name *

Spaces are allowed; punctuation is not allowed except for periods, hyphens, apostrophes, and underscores.

Professional email *

Registry users are required to use their professional email accounts. These accounts benefit from the possibility to have editor access (if requested) for the data of their organization (e.g. to register services for their organization). Non-professional email accounts will be accepted as an exception. E.g. students, external consultants to an organization. In this case the organization they represent (school/university name for students) must be indicated in the registration request. An explanation of why a professional account from the organization they represent was not used must be provided in the justification field of the registration. These accounts will not be allowed to edit content in the registry.

Organisation

- None -

If your organisation is not listed, please write it's name in the field below.

Other organisation

Organisation website

Expected user/organization's role in SWIM/ATM

I have read and agree with the [Policy and Disclaimer](#) *

Please refer to the registration process for an overview on the steps required to get an account in the registry

Verification *

Type the characters you see in the picture; if you can't read them, submit the form and a new image will be generated. Not case sensitive. [Switch to audio verification.](#)

Create new account

Figure 12 Registry Highlight Reporting Functionality

From a registry operations point of view, it is required to know the organization users belong to. Access controls can be enforced at organization level (e.g. registration of services for an organization requires the user to belong to this organization and have an administrator role for that organization)

The registration of organizations is linked to the user requests process. A user can only be registered if it comes from a registered organization. If the organization of the requesting user is still not registered, then this will be done as part of the user registration process.

Criteria defining which organizations are accepted in the registry have not been defined yet.

2.6.2 Functional Analysis

There is no further analysis on the functionality than that provided in the previous section.

2.7 Service View

This section provides an overview of the registry in terms of interfaces and operations that can be performed.

There are two different interfaces attending to the type of consumer:

- Human interface. This is the main interface of the registry and is used in support of all the operational scenarios defined in this document. The interface enables a person to interact directly with the registry via a graphical interface.

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- System interface. This interface enables a system to exchange data with the registry.

2.7.1 Human Interface

The functionality provided via the HMI can be segmented in three different interfaces:

- Registration Interface. It enables the registration of resources in the registry. This interface is used by both the resource owners as well as those responsible for the validation/approval of resource registrations.
- Discovery Interface. It enables searching and retrieving information on registered resources.
- Support Interface. It enables the registry administrators to manage information in the registry that is required to enable the functionality provided by both the registration and discovery interfaces. (e.g. access management, taxonomy management)

Appendix II provides a comprehensive description of the human interface providing a set of wireframes that describe how the user interacts with the registry.

2.7.2 Machine Interface

If the global perspective is considered, it is clear that multiple SWIM registries will coexist. Registries will be implemented in support to service governance that is expected to have different approaches in different regions.

In the absence of a common approach, it is expected a proliferation of registries that will manage service information relevant for their own community/region. This will be to the detriment of global service users that will pay for the inefficiencies of scattered service information over multiple silo repositories using different terminologies, and difficult to compare information. This is a global problem that will require a global solution currently under discussion at ICAO level.

CP2.1 has assessed this registry interoperability problem between SESAR and NextGen and has made the following recommendations:

- Registry implementations should be able to exchange service information with each other by implementing a common exchange interface. This will create a federated network of affiliated registries where users have access to all service information independently of where it was registered.
- The exchange interface should be common to all implementations and establish a 1) common information exchange model addressing semantic and syntactic interoperability and a 2) common exchange protocol for enabling technical interoperability between interconnected registry systems.
- The exchange of information between registries should consider organizational (e.g. registration processes) and legal issues (e.g. privacy).
- A federated approach to exchange service information does not preclude the future deployment of a centralized registry for the management of common standards and policies.

2.7.3 Qualities of Service

2.7.3.1 Availability

Availability deals with the risk of data not being available when needed.

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As the registry scope in this document is focused on design time context, a brief (i.e. several hours) unavailability of the registry will not be catastrophic but could still have an impact on the productivity of those users impacted.

2.7.3.2 Accessibility

The information in the registry must remain accessible for its stakeholders. To enable this, the registry information should be easily reachable i.e. over the internet, without any specialized software (apart from a web browser).

The registry must be accessible concurrently by multiple users at the same time.

2.7.3.3 Integrity

Integrity deals with the risk of data being modified undetectably.

As the registry scope in this document is focused on design time context, an undetected alteration of data is not expected to have major consequences, however the following aspects need to be considered:

- Alteration of service implementation information (e.g. connectivity requirements) might lead consumers to establish exchanges of information with rogue implementations.
- Alteration of registry information to introduce viruses.

2.7.3.4 Confidentiality

Confidentiality deals with the risk of disclosing information to unauthorized individuals or systems. The registry is built to increase visibility of service information raising the level of SWIM implementation awareness. This translates into a low requirement for confidentiality; however there is certain information for which their owners might prefer that this remains accessible only to the SWIM stakeholders and not to everyone in the internet:

- Certain standards and specifications developed by the SWIM Governance with specific IPR requirements.
- SWIM Governance specifications and policies addressing security.
- Sensitive service implementation information: access points, security specifications, compliance information.

2.7.3.5 Authenticity and non-repudiation

Based on the need to preserve the confidentiality and integrity of information in the registry, it is important to validate the authenticity of users that access the registry (validate they are who they claim they are). Equally important is the need for a registry consumer to make sure that is genuinely interacting with the registry.

Additionally, the registry shall ensure that the actions done on the registry data can be traced to a known identity, so that the origin of data is always known and the originator cannot repudiate these actions.

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3 Functional block Functional and non-Functional Requirements

This section provides the functional and non-functional requirements of the registry. These requirements are formally expressed as required in SESAR and have been derived from the content of the previous section.

3.1 Capabilities

3.1.1 Registration Requirements

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0004 |
| Requirement | The Registry shall provide an interface that allows registering structured information. <ul style="list-style-type: none"> • Allows creation, updating and deletion of information for the registry. • Maintains the consistency and referential integrity of information based on the registry model. • It exposes this functionality to specific roles. |
| Title | Registration of structured information |
| Status | <In Progress> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | SWIM Registry | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0005 |
| Requirement | The Registry shall enforce predefined processes for registering information ensuring: <ul style="list-style-type: none"> - The sequence of registration steps and their status is known to those involved. - Relevant actors remain informed and are able to provide comments. - Approval by those responsible |
| Title | Controlled Registration Process |
| Status | <In Progress> |
| Rationale | It ensures a controlled update of registry information. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

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[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | SWIM Registry | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0006 |
| Requirement | The Registry shall support the association of comments with a particular artefact. This requirement applies to authenticated users with a registry role. |
| Title | Artefact commenting |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | SWIM Registry | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0007 |
| Requirement | The Registry shall allow to view all comments done on an artefact This requirement applies to all roles. |
| Title | Artefact comments view |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|----------------------|------------|
| <ALLOCATED_TO> | <Functional block> | SWIM Registry | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS- | <Full> |

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| | | | |
|--|--------------|-----------|--|
| | Requirement> | ASRE-0090 | |
|--|--------------|-----------|--|

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0008 |
| Requirement | <p>The Registry shall allow the creation of a new version of a model (i.e. AIRM, ISRM). This shall create a new instance considering the following two options:</p> <ul style="list-style-type: none"> A new blank artefact will be created without taking into account any of the constituting Artefacts or information from the current version. <p>Create a duplication of information based on the current version. This requirement applies to the role of the contributor.</p> |
| Title | Model instance version creation |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0009 |
| Requirement | <p>The Registry shall allow importing the definition of a AIRM model from a file into the Registry internal data structures considering:</p> <ul style="list-style-type: none"> The import process shall extract information and dependencies for all artefacts. The user shall indicate on which model instance the definitions should be done (e.g. AIRM v2.0) There shall be only one definition file per model instance. The definition file shall be available under the model documentation The model definition file shall be in XMI format <p>The model definition file shall be imported once and only once into a particular model instance. This requirement applies to the role of the contributor.</p> |
| Title | AIRM Model definition import |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

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[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0010 |
| Requirement | <p>The Registry shall allow importing the definition of an ISRM model from a file into the Registry internal data structures considering:</p> <ul style="list-style-type: none"> • The import process shall extract information and dependencies for all artefacts. • The user shall indicate on which model instance the definitions should be done (e.g. ISRM v1.1) • There shall be only one definition file per model instance. • The definition file shall be available under the model documentation • The model definition file shall be in XML format <p>The model definition file shall be imported once and only once into a particular model instance. This requirement applies to the role of the contributor.</p> |
| Title | ISRM Model definition import |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0011 |
| Requirement | <p>The Registry shall allow importing the definition of a Service Implementation from a file into the Registry internal data structures considering:</p> <ul style="list-style-type: none"> • The import process shall extract information and dependencies for all artefacts. • The user shall indicate on which Service Implementation the definitions should be done. • There shall be only one definition file per Service Implementation. |

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| | <ul style="list-style-type: none"> The definition file shall be available under the service documentation The service definition file shall be in WSDL format <p>The service definition file shall be imported once and only once into a particular model instance. This requirement applies to the role of the contributor.</p> |
| Title | Service Implementation definition import |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0012 |
| Requirement | The Registry shall allow the deletion of a model instance including all integrating artefacts. This requirement applies to the role of the contributor. |
| Title | Model instance deletion |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0013 |
| Requirement | The Registry shall allow changing, deleting or adding information for the different types of artefacts identified for the registry. This requirement applies to the role of the contributor. |
| Title | Model artefact update |
| Status | <Deleted> |

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| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0014 |
| Requirement | The Registry shall allow the update of information relative to the lifecycle of an artefact, it allows in specific to: <ul style="list-style-type: none"> - Request approval - Approve, reject - Mark pending action as done - Cancel - Deprecate This requirement applies to the role of the contributor and manager. |
| Title | Artefact lifecycle update |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0015 |
| Requirement | The Registry shall allow collecting comments for a particular artefact. This requirement applies to the role of the information viewer. |
| Title | Artefact commenting |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the |

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| | |
|---------------------|-------------------------------------|
| | registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0016 |
| Requirement | The Registry shall allow to view all comments done on an artefact This requirement applies to all roles. |
| Title | Artefact comments view |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the modification of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-PUBL.0017 |
| Requirement | The registry shall enable the registration of different versions of the same artefact. <ul style="list-style-type: none"> Registered items should always reflect the version identification. The registry should enable to duplicate (clone) existing information with the objective of facilitating the creation of a new version. It should also enable to compare differences between different versions of registered information. This applies only to the structured descriptions stored in the registry. Attachments or external references are not considered in the comparison. |
| Title | Information Versioning |
| Status | <In Progress> |
| Rationale | The registry shall enable to efficiently manage different versions of registered information to support the evolution of SWIM. |
| Category | <Functional> |

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| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0018 |
| Requirement | The registry shall enable to classify resources based on a common registry taxonomy that facilitates the discovery and comparability of resources. |
| Title | Information Categorization |
| Status | <In Progress> |
| Rationale | Categorization facilitates the discovery and comparability of resources |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0019 |
| Requirement | <p>The registry shall enable the import of resource description files to store the structured description of resources into the data structures of the registry.</p> <p>This applies to service logical models that require the registry to support the following process:</p> <ul style="list-style-type: none"> • The service logical model submitted by the designer of a service is registered in order to formalize its delivery to the service verification process. No import or manipulation of the file is done at the registry level that limits its role to store this file. • The service verification manager gets the submitted model from the registry. After the verification process has finished it is produced a file (potentially the same if it is in the same format as required by the registry) that will be imported in the registry. • The service verification process results are registered as feedback to the service designer in the registry. • The import of the model in the registry implies the representation of the content and structure of the file in the registry. (e.g. this will |

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| | <p>enable SWIM Stakeholders to identify and reference individually each of the operations of a service in the registry)</p> <ul style="list-style-type: none"> The service logical model file that is imported in the registry has a physical data structure that is derived from the SDCM (Service Description Conceptual Model). The person that triggers the import process in the registry requires having the reference administrator role. |
| Title | Import of resource description files |
| Status | <In Progress> |
| Rationale | The import of resource information automates the registration of content reducing the amount of manual work. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| Identifier | REQ-08.03.02-TS-PUBL.0020 | | | | | | | | |
|-------------|--|------|-------------|----------|--|------------|---|------------|--|
| Requirement | <p>The registry shall enable the registration of information that describes the conformance of a service implementation to criteria provided by the SWIM Governance Authority. This information should be differentiated from the rest of service implementation information and registered by a dedicated process that is independent of the service implementation registration process.</p> <p>This is a controlled process that distinguishes the following steps:</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Drafting</td> <td>The information is being updated by the owner.</td> </tr> <tr> <td>Validation</td> <td>The information is considered final by the owner and the Service Registration Administrator is validating it.</td> </tr> <tr> <td>Registered</td> <td>The information is considered validated by the Service Registration Administrator and is effectively registered.</td> </tr> </tbody> </table> | Step | Description | Drafting | The information is being updated by the owner. | Validation | The information is considered final by the owner and the Service Registration Administrator is validating it. | Registered | The information is considered validated by the Service Registration Administrator and is effectively registered. |
| Step | Description | | | | | | | | |
| Drafting | The information is being updated by the owner. | | | | | | | | |
| Validation | The information is considered final by the owner and the Service Registration Administrator is validating it. | | | | | | | | |
| Registered | The information is considered validated by the Service Registration Administrator and is effectively registered. | | | | | | | | |
| Title | Registration of Service Implementation Compliance Declaration | | | | | | | | |
| Status | <In Progress> | | | | | | | | |
| Rationale | The registry does not only support consumers to discover relevant service information. It also supports the SWIM governance to measure the adherence of service implementations to expected SWIM criteria. | | | | | | | | |
| Category | <Functional> | | | | | | | | |

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| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0021 |
| Requirement | The registry shall enable a representative from the SWIM Governance Authority to register the level of SWIM compliance associated to a service implementation. |
| Title | Registration of Service Implementation Compliance Assessment |
| Status | <In Progress> |
| Rationale | The registry supports SWIM Governance promoting transparency registering the level of adherence of service implementations to SWIM criteria. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-PUBL.0022 |
| Requirement | The registry shall enable a representative from the SWIM Governance Authority to register the relevant standards and policies that shall drive the implementation of SWIM. It depends on an external process to the registry that determines when a new standard/policy needs to be registered. |
| Title | Registration of SWIM Reference |
| Status | <In Progress> |
| Rationale | The registry supports SWIM Governance in the communication of what is expected for the implementation of SWIM. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|--------------|---------------------|------------|------------|
|--------------|---------------------|------------|------------|

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| | | | |
|----------------|--------------------------|-------------------------------|--------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| Identifier | REQ-08.03.02-TS-PUBL.0023 | | | | | | | | | | |
|---------------------|---|--|--|------|-------------|----------|--|------------|---|------------|--|
| Requirement | <p>The registry shall enable the registration of service implementations to the service providers. This is a controlled process that distinguishes the following steps:</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Drafting</td> <td>The information is being updated by the owner.</td> </tr> <tr> <td>Validation</td> <td>The information is considered final by the owner and the Service Registration Administrator is validating it.</td> </tr> <tr> <td>Registered</td> <td>The information is considered validated by the Service Registration Administrator and is effectively registered.</td> </tr> </tbody> </table> | | | Step | Description | Drafting | The information is being updated by the owner. | Validation | The information is considered final by the owner and the Service Registration Administrator is validating it. | Registered | The information is considered validated by the Service Registration Administrator and is effectively registered. |
| Step | Description | | | | | | | | | | |
| Drafting | The information is being updated by the owner. | | | | | | | | | | |
| Validation | The information is considered final by the owner and the Service Registration Administrator is validating it. | | | | | | | | | | |
| Registered | The information is considered validated by the Service Registration Administrator and is effectively registered. | | | | | | | | | | |
| Title | Registration of Service Implementations | | | | | | | | | | |
| Status | <In Progress> | | | | | | | | | | |
| Rationale | The registry shall support service providers by enabling discovery of their service implementations. This also allows the service governance authority to have an inventory of implementations in SWIM. | | | | | | | | | | |
| Category | <Functional> | | | | | | | | | | |
| Validation Method | <Expert Group (Judgement Analysis)> | | | | | | | | | | |
| Verification Method | <Test> | | | | | | | | | | |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | | | |
|-------------|--|--|--|
| Identifier | REQ-08.03.02-TS-PUBL.0024 | | |
| Requirement | <p>The registry shall enable the deletion of registered information guarantying referential integrity of the remaining information. When information is requested by the user via the interface to be deleted from the registry:</p> <ul style="list-style-type: none"> • A listing of referential information is provided to the user before deletion asking for confirmation • All additional information that is considered to be a part of the deleted information will be also deleted. (e.g. when a service is deleted, all its registered operations will be also deleted) • All information that makes reference to it will automatically loose its | | |

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| | reference. (there will be no pointers to non-existing information) |
| Title | Information Consistent Deletion |
| Status | <In Progress> |
| Rationale | The registry maintains consolidated and consistent information. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0090 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.1.2 Discovery Requirements

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-DISC.0006 |
| Requirement | The Registry shall provide users with an interface that provides different views to the different types of information registered. The views show a structured description of registered information and its dependencies. |
| Title | Information Views |
| Status | <In Progress> |
| Rationale | Information is registered with the objective of providing a consolidated view to SWIM information. Hence this information must become available to the SWIM stakeholders for viewing. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-DISC.0007 |
| Requirement | The Registry shall provide any stakeholder an on-demand view of any dependencies between two or more selected artefacts. The view should provide a graphical representation of the information based on graph where the nodes are the artefacts and the lines are the dependencies. |
| Title | Artefact dependencies view |
| Status | <In Progress> |
| Rationale | There shall be an interface that allows the discovery of information in the registry. |

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| Category | <Deleted> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-DISC.0008 |
| Requirement | The Registry shall allow searching for information based on: <ul style="list-style-type: none"> - Full text search on: <ul style="list-style-type: none"> o Artefact structured information o Content of attached documents - Multi-criteria search based on: <ul style="list-style-type: none"> o Categories (Taxonomies) o Artefact Type/Version This requirement applies to all roles. |
| Title | Information Search |
| Status | <In Progress> |
| Rationale | Users must be able to filter information in the registry to help them identify the information of their interest. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-DISC.0009 |
| Requirement | The Registry shall allow browsing the different artefacts available in the registry navigating through the different taxonomies available. This requirement applies to all roles. |
| Title | Artefacts browse |
| Status | <Deleted> |
| Rationale | There shall be an interface that allows the discovery of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-DISC.0010 |
| Requirement | <p>The Registry shall support users to follow up information changes in the registry by enabling them to subscribe to changes related to:</p> <ul style="list-style-type: none"> • a particular resource, • a category of resource (e.g. Flight related) • a type of resource (e.g. service, standard) <p>The registry shall support notifications that provide the user with information on resources that matches the subscription category:</p> <ul style="list-style-type: none"> • When the resources is updated/created • Are sent via email • The user can determine the delay of notification (e.g. immediate, daily/weekly digest) |
| Title | Subscriptions to notifications |
| Status | <In Progress> |
| Rationale | There shall be an interface that allows the discovery of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-DISC.0011 |
| Requirement | The Registry should enable users to get a quick view to registry information and its evolution based on graphical representations that summarize registry content (e.g. chart on most popular/recent content, number of resources per ATM domain). |

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| | |
|---------------------|---|
| Title | Highlight Reporting |
| Status | <In Progress> |
| Rationale | The registry should facilitate the discovery of SWIM information. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-DISC.0012 |
| Requirement | The Registry shall provide registered information with: <ul style="list-style-type: none"> • A unique resource identifier (URI) • A unique resource location (URL) |
| Title | Information Identifiers and resource locators |
| Status | <In Progress> |
| Rationale | The registry enables the discovery of information and promotes its reusability by making it referenceable. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.1.3 Support Requirements

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-SUPP.0005 |
| Requirement | The Registry shall provide the administrator with an interface that enables to create/modify workflows taking into account: <ul style="list-style-type: none"> • A workflow is associated with a registry resource type (e.g. Service Implementation) • A workflow is defined as a sequence of steps. • When a resource is created, a workflow is associated in its initial step. • A step is associated with other steps (i.e. next possible steps) • The progression from one step to another can be restricted to users with a particular role. |

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| | <ul style="list-style-type: none"> • A step can have tasks associated with it. • A task can be either done or not. • A done task has as properties the date and name of the person that marked the tasks as done. |
| Title | Workflow Management |
| Status | <In Progress> |
| Rationale | The registry must be flexible in customizing and creating additional workflows as it will need to always adapt to the SWIM governance processes as they evolve. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-SUPP.0006 |
| Requirement | <p>The Registry shall provide the Registry Administrator with an interface that allows the management of taxonomies in the registry taking into account:</p> <ul style="list-style-type: none"> • A taxonomy is defined as a hierarchy of elements • Elements are defined by a name and description • New elements can be added/deleted/updated |
| Title | Taxonomies Management |
| Status | <In Progress> |
| Rationale | Categorization enables to classify resources based on a common registry taxonomy that facilitates the discovery and comparability of resources. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

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| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SUPP.0007 |
| Requirement | The Registry shall provide the administrator with an interface that enables the management of users access to the registry, enabling to : <ul style="list-style-type: none"> • See a list of all registry users • update the registry roles associated with users |
| Title | User Access Management |
| Status | <In Progress> |
| Rationale | The registry needs to authenticate users and manage the access level they have to registry resources. Access management is one of the most effort intensive activities for the administrator of the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SUPP.0008 |
| Requirement | The Registry shall provide with an interface that enables users to request an account to login to the registry, by providing a name, email address, organisation, expected role and agreeing to a set of terms and conditions of use. |
| Title | User Registration |
| Status | <In Progress> |
| Rationale | The registry needs to authenticate users and manage the access level they have to registry resources. User registration is required for that. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-SUPP.0009 |
| Requirement | The Registry shall provide the administrator with an interface that allows managing a consolidated list of organizations of the users of the registry. |
| Title | Organization Registration |
| Status | <In Progress> |
| Rationale | From a registry operations point of view, it is required to know the |

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| | organization users belong to. Access controls can be enforced at organization level (e.g. registration of services for an organization requires the user to belong to this organization and have a contributor role for that organization) |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.2 Adaptability

There are no requirements identified so far in this category.

3.3 Performance Characteristics

There are no requirements identified so far in this category.

3.4 Safety & Security

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-SECU.0005 |
| Requirement | The Registry shall be capable of authenticating its users. Further details on the authentication are provided on the Security Appendix of this document. |
| Title | User authentication |
| Status | <In Progress> |
| Rationale | There is the need to protect certain information from unauthorized usage and track who is modifying information in the Registry. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0030 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0050 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0060 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-SECU.0006 |
| Requirement | <p>The Registry shall be capable to enforce the authorization of user accesses request to the Registry.</p> <p>The registry shall enable the enforcement of identified user's access in relation to the following roles:</p> <ul style="list-style-type: none"> • <u>Registry Member</u>: It is a role associated to a person member of a SWIM Stakeholder with interest in registry information in general. • <u>Service Provider Administrator</u>: It is a role associated to a person member of a service provider that has the responsibility to register services for his organization. • <u>Governance Administrator</u>: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance registers the reference material in the registry (e.g. Service Models, SWIM Compliance Requirements). • <u>Service Registration Administrator</u>: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance validates the registrations of service implementations. • <u>Service Compliance Administrator</u>: It is a role associated to a person member of the registry operations manager that on behalf of the SWIM Governance registers the results of a service compliance assessment. • <u>Registry Support Administrator</u>: It is a role associated to a person member of the registry operations manager that acts as the point of contact to support registry users. It manages access control lists as well as registry related communications. <p>Further details on the authorization are provided on the Security Appendix of this document.</p> |
| Title | User request authorization |
| Status | <In Progress> |
| Rationale | There is the need to protect the information from unauthorized usage. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | SWIM Registry | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0030 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0050 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0060 | <Full> |

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| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |
|-------------|-----------|------------|--------|

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0007 |
| Requirement | The Registry shall protect the integrity of information from unauthorized modification. |
| Title | Information Integrity |
| Status | <In Progress> |
| Rationale | There is the need to protect the information from unauthorized modification. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0030 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0050 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0060 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0008 |
| Requirement | The Registry shall remain available 98% of the time. Planned system outages are not included. |
| Title | Information Availability |
| Status | <In Progress> |
| Rationale | There is the need to ensure that registry information remains available. However its short unavailability is not considered to have a major impact. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-SECU.0009 |
| Requirement | <p>The registry shall provide two interfaces to the registry information with different authentication requirements:</p> <ul style="list-style-type: none"> • Registry public interface enables access to a specific set of |

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| | <p>information via a public URL without a requirement for authentication.</p> <ul style="list-style-type: none"> ○ SWIM Activity Information Pages(news, educational, promotional) ○ Register Information teasers (partial views of content). • Registry restricted interface; it enables to enforce access to all register information to authorised users through the enforcement of access controls. |
| Title | Restricted and Public interfaces |
| Status | <In Progress> |
| Rationale | The registry public interface enables to communicate with the larger community of SWIM stakeholders: users interested in the high level information about SWIM and its evolution, including persons from organizations not yet formally involved in SWIM. The restricted interface enables to identify the users and their interest, and restrict/personalized their access to information. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0010 |
| Requirement | The registry should enable information owners (e.g. service provider) to make a partial description of their registered resources available via the public interface. |
| Title | Dual zone access |
| Status | <In Progress> |
| Rationale | This enables registered information to become publicly referenceable with a public URL. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0011 |
| Requirement | The registry shall enable to define access control at an organization level |

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| | for all the resources own by the organization. The registry shall enable to classify the users of an organization in roles specific to the organization members to distinguish their access level to manage organization information in the registry. (e.g. contributors, readers) |
| Title | Organization based ownership |
| Status | <In Progress> |
| Rationale | This enables to apply an efficient and consistent access control to registry information. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0012 |
| Requirement | The registry shall maintain a history of access to registry resources |
| Title | Audit trails |
| Status | <In Progress> |
| Rationale | This enables to help investigate and resolve incidents with information access. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0013 |
| Requirement | The registry shall enforce encryption for all information provided via the restricted interface. |
| Title | Encrypted Transport |
| Status | <In Progress> |
| Rationale | Although there is low requirements in terms of protecting the confidentiality and integrity of information, it is advisable the use of encrypted communications with the registry |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|---------------------|------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |

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|--------------|--------------------------|-------------|--------|
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-SECU.0014 |
| Requirement | The registry shall implement CAPTCHA mechanisms whenever it is detected automatic account registrations.. |
| Title | CAPTCHA |
| Status | <In Progress> |
| Rationale | This prevents bots flooding the registry with useless account registration requests. |
| Category | <Security> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.5 Maintainability

There are no requirements identified so far in this category.

3.6 Reliability

There are no requirements identified so far in this category.

3.7 Functional Block Internal Data Requirements

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.1000 |
| Requirement | The registry shall be able to store the different information classes with their properties and relationships as defined in the Registry Information Model (see Annex I) |
| Title | SWIM Registry Information Model |
| Status | <In Progress> |
| Rationale | The registry is able to describe those resources that are relevant for the development and deployment of SWIM. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0040 |
| Requirement | The Registry shall define and manage common attributes (metadata) for the description of the various types of artefacts that are recorded in the registry. This is described in the registry meta model section of the Registry Information Model (see Annex I) |
| Title | Artefact Common Metadata |

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| Status | <In Progress> |
| Rationale | Ensure consistency in the description of information in the registry. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |

3.7.1 Service Implementations

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0014 |
| Requirement | <p>The Registry shall store information on Service Implementations that will include:</p> <ul style="list-style-type: none"> • Design information (has an impact on interoperability) • Profile information that describes the service in terms of capabilities and provision aspects (e.g. contractual information). It helps consumers identify the fit of the service and the non-technical aspects of the service. • Compliance information captures information that determines the degree of alignment to SWIM criteria (i.e. compliance level) <p>This shall be aligned with the Registry Information Model (see Annex I)</p> |
| Title | Service Implementation Information |
| Status | <In Progress> |
| Rationale | Service implementation information is store to enable is discovery by consumers and for the SWIM Governance to maintain an overview on deployment. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

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[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0015 |
| Requirement | The Registry shall store information on Service Implementation Operation artefacts. An instance of this artefact describes a concrete operation of a service. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Service Implementation Operation Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the service providers Service Implementations. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0016 |
| Requirement | The Registry shall store information on EndPoint artefacts. An instance of this artefact describes where the Service Implementation is available for consumption. This artefact is described by the following information fields: <ul style="list-style-type: none"> - EndPoint URL - Transport Relationships: Is Made of: Nothing Classified Taxonomies: None |
| Title | Service Implementation EndPoint Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the service providers Service Implementations. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
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| | | | |
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| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0017 |
| Requirement | The Registry shall store information on Service Implementation Technical Interface. The interface determines how to technical interoperate with the service. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Service Implementation Definition File Information |
| Status | <In Progress> |
| Rationale | Storage of all information required for the governance of the service providers Service Implementations. |
| Category | <Deleted> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0018 |
| Requirement | The Registry shall store information on Service Implementation Data Schema artefacts. An instance of this artefact describes a data schema used by the Service Implementation to structure the information. This artefact is described by the following information fields: - Location Relationships: Is Made of: Nothing Related to: - Physical Data Models Schema Information Classified Taxonomies: None |
| Title | Service Implementation Data Schema Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the service providers Service Implementations. |

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| | |
|---------------------|-------------------------------------|
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.7.2 Standards

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0019 |
| Requirement | The Registry shall store information on the AIRM Model. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Data model information |
| Status | <In Progress> |
| Rationale | It provides visibility to the AIRM and enables the registry users to remain informed on new versions and updates. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0020 |
| Requirement | The Registry shall store information on data model artefacts. An instance of this artefact describes a particular change request on a AIRM Model. This artefact is described in the Registry Information Model (see Annex I) |
| Title | AIRM Change request information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

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| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0021 |
| Requirement | The Registry shall store information on data standards. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Data Standards |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0022 |
| Requirement | <p>The Registry shall store information on data type artefacts.</p> <p>An instance of this artefact describes a particular data type of the data model it belongs to</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - Version - Owner - Life Cycle Status - Documentation <p>Relationships:</p> <p>Is Made of:</p> |

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| | |
|---------------------|---|
| | - AIRM Properties Classified Taxonomies: - AIRM Category |
| Title | Data type information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0023 |
| Requirement | The Registry shall store information on property artefacts. An instance of this artefact describes an AIRM data type. This artefact is described by the following information fields: <ul style="list-style-type: none"> - Name - Description - Type - Version - Owner - Life Cycle Status - Documentation Relationships: Is Made of: Nothing Classified Taxonomies: None |
| Title | Property information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

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[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0024 |
| Requirement | The Registry shall store information on service logical models proposed by SWIM governance as the reference for implementation. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Provides visibility to reference service logical models and their evolution. |
| Status | <In Progress> |
| Rationale | Storage of all information required for the governance to promote a common reference for the implementation of services, particularly service logical models . |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0025 |
| Requirement | The Registry shall store information on ISRM Change Requests. This artefact is described in the Registry Information Model (see Annex I) |
| Title | ISRM Change request information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |

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|-------------|-----------|------------|--------|
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |
|-------------|-----------|------------|--------|

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0026 |
| Requirement | <p>The Registry shall store information on Service Logical Models (i.e. ISRM service artefacts).</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - ISRM Status (Identified/Allocated/Designed) - ISRM Service Category <p>Relationships:</p> <p>Is Made of:</p> <ul style="list-style-type: none"> - Set of interfaces - Set of service message data types - Set of message types <p>Classified Taxonomies:</p> <ul style="list-style-type: none"> - ISRM Service Category |
| Title | Service information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0027 |
| Requirement | <p>The Registry shall store information on interface artefacts.</p> <p>An instance of this artefact is used to group a number of operations of a service that have certain characteristics in common (e.g. different interface for the provider of information than the one provided by the consumer of</p> |

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| | |
|---------------------|--|
| | <p>information)</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description <p>Relationships:</p> <p>Is Made of:</p> <ul style="list-style-type: none"> - Set of operations <p>Classified Taxonomies: None</p> |
| Title | Interface information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0028 |
| Requirement | <p>The Registry shall store information on operation artefacts.</p> <p>An instance of this artefact describes an operation provided by the interface of a service.</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - Version - Owner - Life Cycle Status - Documentation <p>Relationships:</p> |

| | |
|---------------------|---|
| | <p>Is Made of:</p> <ul style="list-style-type: none"> - Set of parameters <p>Classified Taxonomies: None</p> |
| Title | Operation information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0029 |
| Requirement | <p>The Registry shall store information on parameter artefacts. An instance of this artefact describes a parameter associated with an operation.</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - Type - Version - Owner - Life Cycle Status - Documentation <p>Relationships:</p> <p>Is Made of: Nothing</p> <p>Classified Taxonomies: None</p> |
| Title | Parameter information |
| Status | <Deleted> |

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|---------------------|---|
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0030 |
| Requirement | <p>The Registry shall store information on message data type artefacts. An instance of this artefact describes a particular message data type within a service.</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - Version - Owner - Life Cycle Status - Documentation <p>Relationships:</p> <p>Is Made of: Nothing</p> <p>Classified Taxonomies: None</p> |
| Title | Message data type information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |

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|-------------|--------------------|-------------------------------|--------|
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0031 |
| Requirement | <p>The Registry shall store information on message type artefacts. An instance of this artefact describes a particular message type within a service.</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Name - Description - Version - Owner - Life Cycle Status - Documentation <p>Relationships:</p> <p>Is Made of: Nothing</p> <p>Classified Taxonomies: None</p> |
| Title | Message type information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the governance of the AIRM/ISRM models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0032 |
| Requirement | <p>The Registry shall store information on Data Exchange Formats that are proposed by SWIM governance as a reference for implementation.</p> <p>This artefact is described in the Registry Information Model (see Annex I)</p> |
| Title | Data Standards |

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| | |
|---------------------|--|
| Status | <In Progress> |
| Rationale | It improves the discovery of data standards and their evolution. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0033 |
| Requirement | <p>The Registry shall store information on Physical Data Model Data Schema artefacts. An instance of this artefact describes a data schema used in a physical data model</p> <p>This artefact is described by the following information fields:</p> <ul style="list-style-type: none"> - Location <p>Relationships:</p> <p>Is Made of: Nothing</p> <p>Classified Taxonomies: None</p> |
| Title | Physical Data Model Data Schema Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the registration of physical data models. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.7.3 Supporting Information

[REQ]

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|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0034 |
| Requirement | The Registry shall store information describing organizations. This information is described in the Registry Information Model (see Annex I) |
| Title | Organization Information |
| Status | <In Progress> |
| Rationale | It is described in the registry the organizations that have users or specific content in the registry (e.g. Service Providers). It enables to reflect the ownership and responsibility of a specific information element to a legal entity. It enables to group content by organization facilitating its discovery and keeping its consistency of data in the registry, as well as to enable the efficient implementation of access controls based on organization privileges. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0035 |
| Requirement | The Registry shall store information on User. This is described in the Registry Information Model (see Annex I) |
| Title | User Information |
| Status | <In Progress> |
| Rationale | Users have an account in the registry that uniquely identifies them and distinguishes them from other users. Users of the registry will have different interests and responsibilities (requiring different functionality/access rights) . |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0036 |
| Requirement | The Registry shall store information on Service Implementation |

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| | |
|---------------------|---|
| | Compliance Declarations. An instance of this artefact describes a Compliance Declaration. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Service Implementation Compliance Declaration Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the registration of Compliance Declaration. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0110 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-INFO.0037 |
| Requirement | The Registry shall store information on application software that can be used to consume from SWIM Services. This artefact is described in the Registry Information Model (see Annex I) |
| Title | Application Information |
| Status | <Deleted> |
| Rationale | Storage of all information required for the registration of application information. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | Publication | N/A |
| <ALLOCATED TO> | <Functional block> | Discovery | N/A |
| <ALLOCATED TO> | <Functional block> | Oversight | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|-------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0038 |
| Requirement | The Registry shall store information on Policies. |
| Title | Policy Information |
| Status | <In Progress> |
| Rationale | Supports the discovery of policy information and its evolution. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |

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| Verification Method | <Test> |
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[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|---|
| Identifier | REQ-08.03.02-TS-INFO.0039 |
| Requirement | The Registry shall enable to store taxonomies that can be used for the classification of information in the registry. For a list of taxonomies identified see Annex III. |
| Title | Taxonomy information |
| Status | <In Progress> |
| Rationale | Helps classify information in the registry improving its discovery. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED_TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.8 Design and Construction Constraints

[REQ]

| | |
|-------------|---|
| Identifier | REQ-08.03.02-TS-OTHR.0001 |
| Requirement | The registry shall provide and interface to exchange data with other registries with the following design considerations: <ul style="list-style-type: none"> • Registry implementations should be able to exchange service information with each other by implementing a common exchange interface. This will create a federated network of affiliated registries where users have access to all service information independently of where it was registered. • The exchange interface should be common to all implementations and establish a 1) common information exchange model addressing semantic and syntactic interoperability and a 2) common exchange protocol for enabling technical interoperability between interconnected registry systems. • The exchange of information between registries should consider organizational (e.g. registration processes) and legal issues (e.g. privacy). • A federated approach to exchange service information does not |

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| | |
|---------------------|---|
| | preclude the future deployment of a centralized registry for the management of common standards and policies |
| Title | Registry Service Synchronization Interface |
| Status | <In Progress> |
| Rationale | A registry exchange interface designed as described will have better chances of getting accepted at a global level. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

[REQ]

| | |
|---------------------|--|
| Identifier | REQ-08.03.02-TS-OTHR.0002 |
| Requirement | <p>The registry information must remain accessible and its interface should be design to enable:</p> <ul style="list-style-type: none"> • Accessibility over the internet, without any specialized software (apart from a web browser). • Concurrent accessibility by multiple users at the same time. |
| Title | Accessibility |
| Status | <In Progress> |
| Rationale | The information in the registry must remain easily accessible for its stakeholders. |
| Category | <Functional> |
| Validation Method | <Expert Group (Judgement Analysis)> |
| Verification Method | <Test> |

[REQ Trace]

| Relationship | Linked Element Type | Identifier | Compliance |
|----------------|--------------------------|-------------------------------|------------|
| <ALLOCATED TO> | <Functional block> | REG | N/A |
| <APPLIES_TO> | <Operational Focus Area> | ENB02.01.01 | N/A |
| <SATISFIES> | <ATMS Requirement> | REQ-08.01.01-CONOPS-ASRE-0010 | <Full> |
| <SATISFIES> | <Enabler> | GGSWIM-58b | <Full> |

3.9 Functional Block Interface Requirements

System interface functionality enables the registry to exchange information with other systems. It includes:

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Inter registry synchronization enables the exchange of information with other registries. This would enable e.g. information registered in the SESAR registry implementation to become discoverable from the NEXTGEN registry implementation

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4 Assumptions

There are no particular assumptions considered.

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5 References

- [1] P8.03.02 D03: Registry concept of operations. V 2.0 28/01/2011
<https://extranet.sesarju.eu/intraprogman/Assessment%20Library/DEL08.03.02-D03%20SWIM%20Registry%20Concept%20of%20Operations%20V1%20-%20draft.doc>

- [2] P08.01.01 D42: SWIM concept of operations v 4.0 30/04/2014
https://extranet.sesarju.eu/WP_08/Project_08.01.01/Project%20Plan/DEL08.01.01-D42-SWIM%20conops.doc

- [3] OMG SOAML Specification
<http://www.omg.org/spec/SoAML/>

- [4] P08.01.01 D53: SWIM Registry Concept of Operations V2, 14/03/2016
https://extranet.sesarju.eu/WP_08/Project_08.01.01/Project%20Plan/D53%20SWIM%20REGISTRY%20CONOPS/DEL08.01.01-D53-SWIM%20Registry%20Concept%20of%20Operations%20V2.docx

5.1 Use of copyright / patent material /classified material

There is no copyrighted material used in the elaboration of this document.

5.1.1 Classified Material

There is no classified material used in the elaboration of this document.

6 Appendix I - Registry Information Model

6.1 Notations

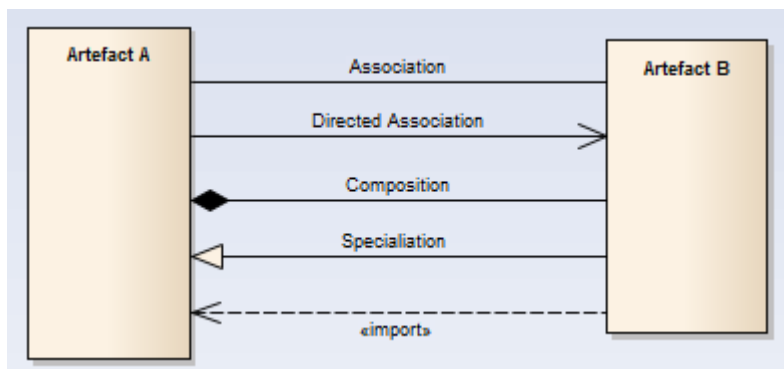


Figure 13: Registry Model Notations

Association (e.g. supports) Refers to related entities with no life cycle dependency. E.g. if a standard is deleted the service implementation continues to exist and viceversa. Unless otherwise stated, the default cardinality is 0-m/0-n

Directed Association. This is an association that can only be established by the owner of the origin artefact towards the destiny artefact (towards it points the arrow)

Composition (e.g. Provides). Refers to entities with life cycle dependency. E.g. If an organization is deleted, all the elements its resources (provided services) should be deleted too. Not the other way round, if a service implementation is deleted its organization remains. Unless otherwise stated, the default cardinality is 1/0-n (where 1 represents the parent)

Specialization establishes the target artefact as a generic content type that won't be instantiated.

Import establishes the source artefact as a content type that won't be instantiated. The source artefact defines a grouping of attributes that will be inherited by the target.

6.2 Meta Model

The registry will distinguish different information entities that are described in the registry as artefacts (e.g. Organization, Service Implementation).

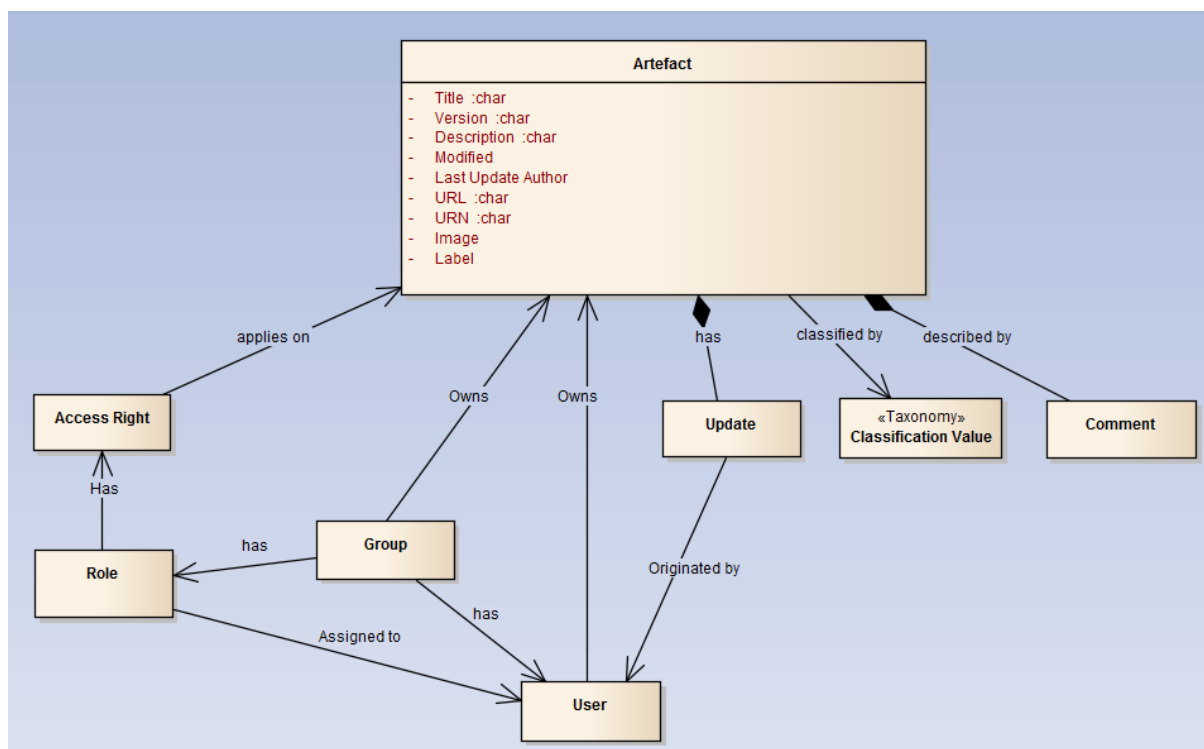


Figure 14: Registry Metamodel

All artefacts (organization, service implementations,..) share a common set of properties:

- Name
- Version
- Applicability (Active=default, Deprecated)
- Applicability Heads Up (Soon Active, Stable=default, Deprecated)
- Description
- Last Update (Date-Time)
- Last Update Author
- URI
- Image

There are some additional supporting information elements that are used for the management of artefacts in the registry:

- Update
- Classification Value
- Comment
- Access Right
- Role
- Group
- User

Different information entities will need additional extra properties and relationships that are specific to them.

6.3 Registry Information Model (artefact types)

The following diagram provides an overview to the different high level entities part of the SWIM Registry information model. Each of the entities described in this model is an artefact and has the properties and relationships stated in the Meta model.

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Those entities that are classified as information pages (stereotyped as Page) represent a type of information in the registry that is used to introduce other entities and provides access to the set of instances of a particular information type (e.g. List of Organizations). These entities are described in the picture for completeness purpose and to facilitate the link to the wireframes in Annex II, however this are not part of the data model.

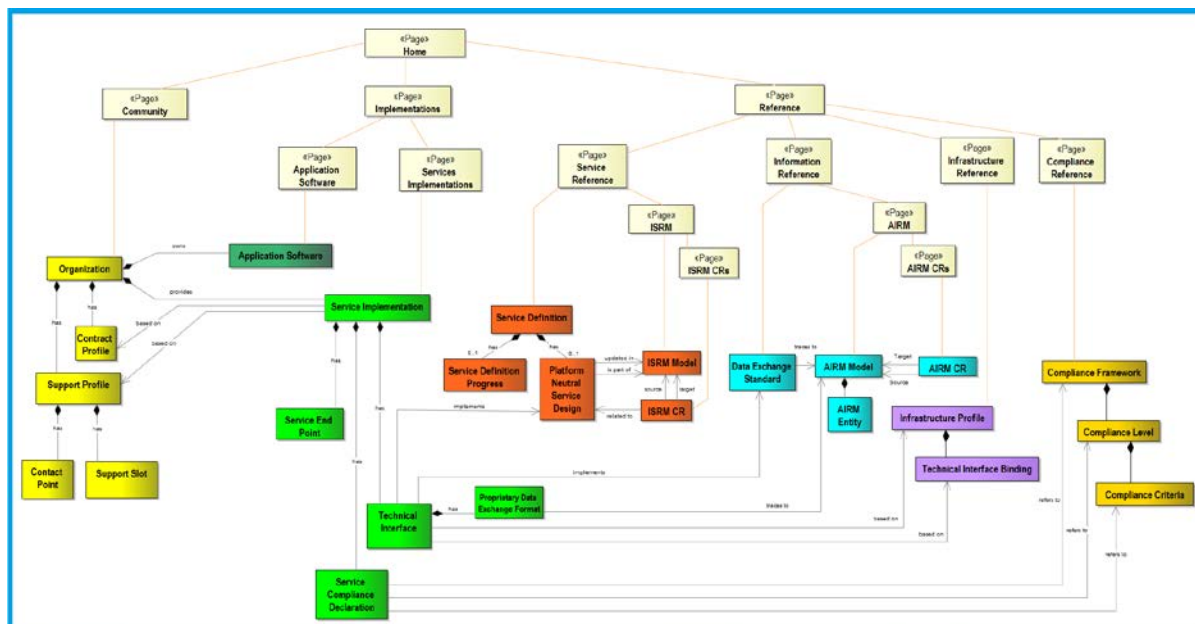
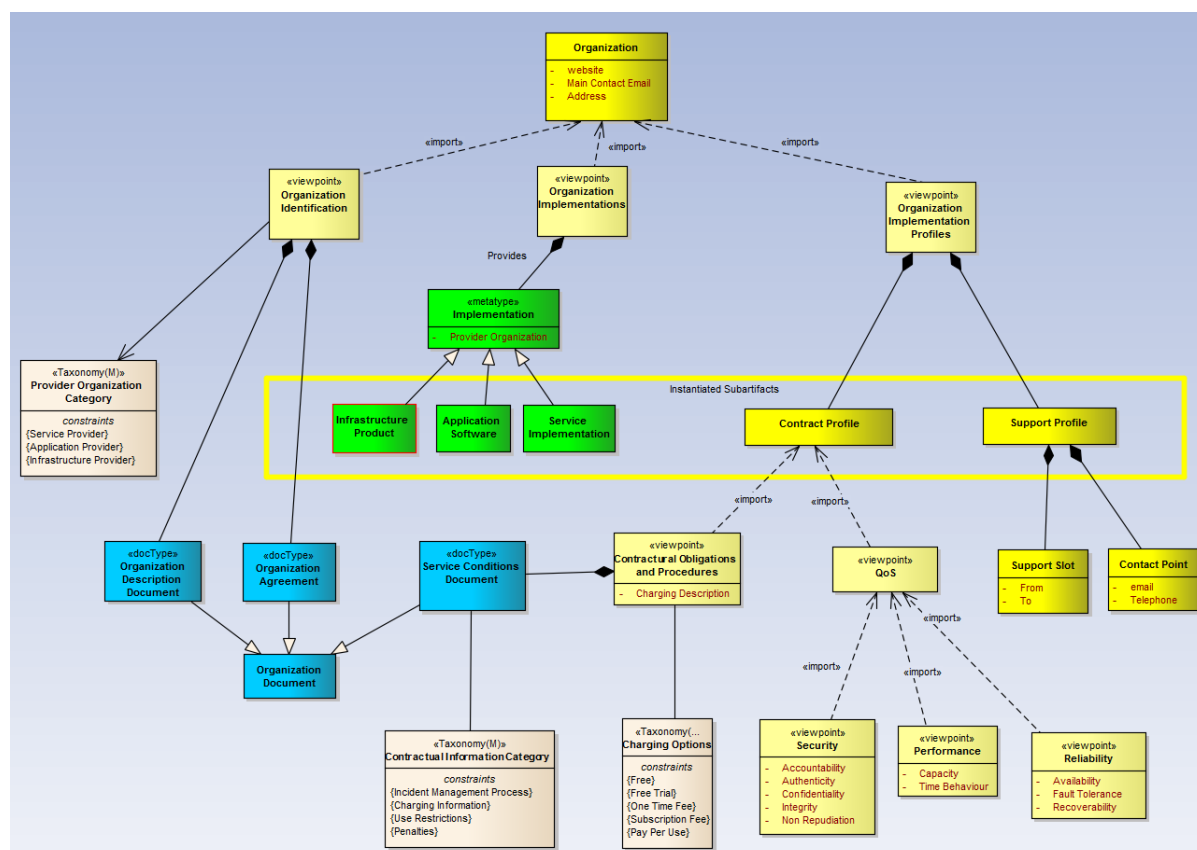


Figure 15: Registry Information Model

6.3.1 Organization



Description

This artefact describes an Organization that is stakeholder of SWIM. The description of an organization and all the artefacts that belong to this organization (e.g. service implementations) is managed by the registry users belonging to that organization.

Types of information

- **Name:** Name to be used when referring to this organization.
- **Description:** Description of the organization.
- **Address:** Address of this organization.
- **Website:** Website of the organization.
- **Main Contact Point:** Coordinates, preferably email address, to be used in case of questions towards this organization.
- **Organization Type:** This enables to classify the organization according to a predefined list of values from the Organization Type Taxonomy (e.g. SESAR Member)
- **Documentation:** This allows the organization to share documents that further describe the organization.

Relationships

The following artefacts belong to an Organization (i.e. a deletion of the parent Organization implies these to be deleted):

- [Service Implementations](#)
- [Applications](#)

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- [Contract Profile](#)
- [Support Profile](#)

6.3.2 Support Profile

Description

This artefact describes a Support Profile that states the intended support hours and contact points.

Types of information

- **Support Slot Overview List:** List of support slots indicating when the support applies.
- **Contact Point Overview List:** List of contact points to be addressed for support.

Relationships

The following artefacts belong to an Support Profile (i.e. a deletion of the parent Support Profile implies these to be deleted) :

- **Support Slot:** Description of the support slot (from-to date/hours).
- **Contact Point:** Contact point coordinates.

6.3.3 Support Slot

Description

This artefact describes a Support Slot that states the intended support dates and hours.

Types of information

- **From:** List of support slots indicating when the support applies. Expressed as Date:Time
- **To:** List of contact points to be addressed for support. Expressed as Date:Time

6.3.4 Contact Point

Description

This artefact describes a Contact Point that represents a contact within the organization that provides the support.

Types of information

- **Title:** This is the name of the person or group (e.g. organization department) acting as contact point.
- **email**
- **Telephone**

6.3.5 Contract Profile

Description

This artefact describes a Contract Profile that states the intended level of service and contractual conditions.

Types of information

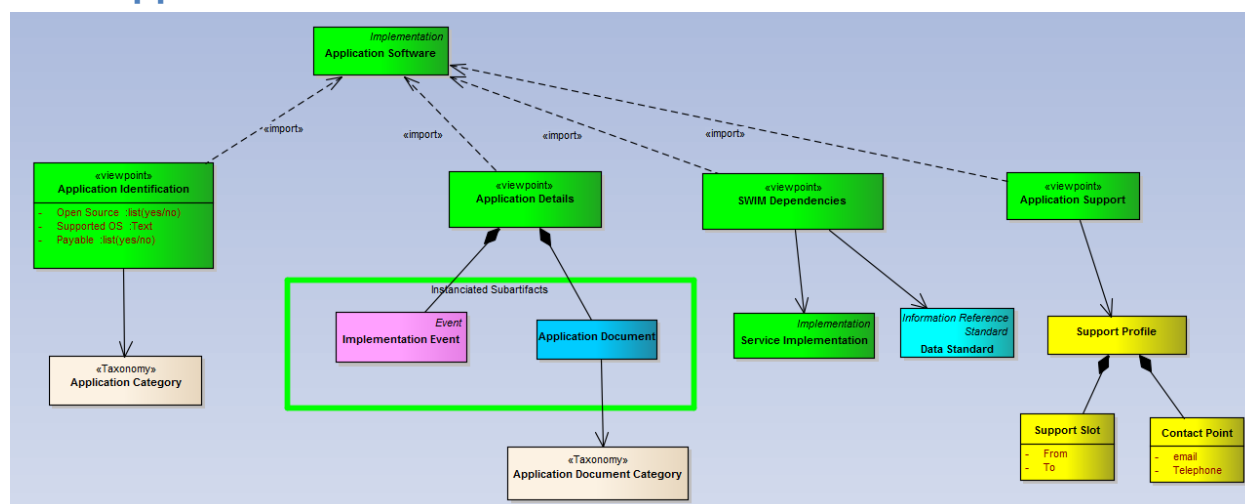
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- **Title:** This is the name of the support profile.
- **QoS:Capacity:** degree to which the maximum limits of the supported entity (e.g. service) meet requirements as stated in its description (e.g. service description). E.g. 100 request/s.
- **QoS:Time Behaviour:** degree to which the response and processing times and throughput rates of the supported entity (e.g. service), when performing its functions, meet requirements as stated in its description (e.g. service description). E.g. 1s processing time per request.
- **QoS:Availability:** degree to which of the supported entity (e.g. service) meets needs for reliability under normal operation. E.g. Availability of 99.9%
- **QoS:Fault Tolerance:** degree to of the supported entity (e.g. service) operates as intended despite the presence of hardware or software faults. E.g. Tolerance ensure by redundant infrastructure.
- **QoS:Authenticity:** degree to which the identity of a subject or resource can be proved to be the one claimed. E.g. Authentication based on client side certificates.
- **QoS:Confidentiality:** degree to which the supported entity (e.g. service) ensures that data are accessible only to those authorized to have access. E.g. Information access requires authentication of user and encryption of communications.
- **QoS:Integrity:** degree to which the supported entity (e.g. service) prevents unauthorized access to, or modification of data. E.g. Information access requires authentication of user and encryption of communications.
- **QoS:Non Repudiation:** degree to which actions or events can be proven to have taken place, so that the events or actions cannot be repudiated later. E.g. Information exchanges are signed by digital signatures.
- **Contractual and Procedural Documents.** List of documents that regulate the relationship between the provider and consumers for the supported entity (e.g. Service Implementation). E.g. SLA, Contract Template, Access Request Form.

6.3.6 Application Software



Description

This artefact describes an Application Software that is SWIM enabled (able to exchange information with SWIM service implementations). Application software is a type of software that when installed on a computer performs tasks directly for a user. A user interacts with application software via a Human

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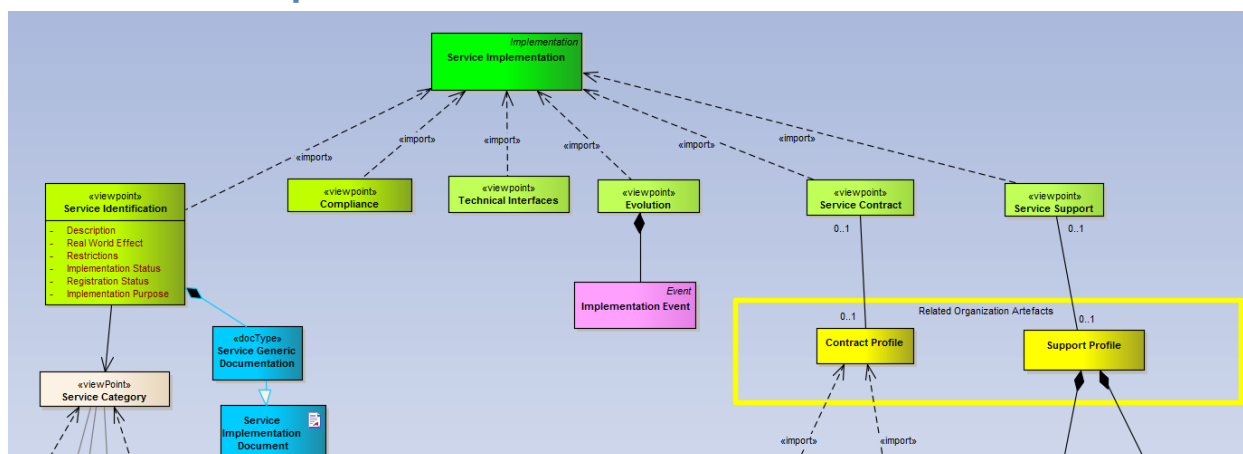
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Machine Interface (HMI). The registry will register application software agnostic of the installations that have been done of that software. SWIM enable application software is software that is able to communicate with SWIM Services.

Types of information

- **Title:** This is the name of the application software.
- **Version:**
- **Description:** High level description of application functionality.
- **Version Category:** Based on taxonomy (specific set of values) it describes whether this description is still applicable or obsolete.
- **Open Source:** Yes/No
- **Supported OS:** List of operating systems supported.
- **Payable:** Yes/No and a link or short description of pricing.
- **Registration Status:** Based on taxonomy (specific set of values) it describes the status of registration in the SWIM Registry.
- **Implementation Maturity:** Based on a taxonomy (specific set of values) it allows to determine how advanced/reliable is the application (e.g. Prototype, Operational)
- **ATM Data Category:** Based on taxonomy (specific set of values) it describes the type of data the application deals with.
- **ATM Activity Category:** Based on taxonomy (specific set of values) it scopes the expected use of the application for a particular ATM activity.
- **ATM Stakeholder:** Based on a taxonomy (specific set of values) it scopes the expected use of the application for a particular type of ATM stakeholder (e.g. Airline)

6.3.7 Service Implementation



Description

This artefact describes a Service Implementation that can be defined as:

- a deployed instance of a service
- enables the execution of an action on a system (e.g. record a flight plan) or the access to information (e.g. weather forecast)
- is provided by an organization that supports it committing to a certain level of quality (e.g. availability) and states the conditions that regulate the relationship with the consumers

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- is enabled by software installed on a computer reachable remotely over a network by other computers (that host applications) via a technical interface that establishes the requirements on how to interact with it

Types of information

- **Title:** This is the name of the service implementation.
- **Version:**
- **Description:** High level description of service implementation functionality, real world effect and restrictions (if applicable).
- **Version Category:** Based on taxonomy (specific set of values) it describes whether this artefact is still applicable or obsolete.
- **Registration Status:** Based on taxonomy (specific set of values) it describes the status of registration in the SWIM Registry.
- **Implementation Maturity:** Based on a taxonomy (specific set of values) it allows to determine how advanced/reliable is the service implementation (e.g. Prototype, Operational)
- **ATM Data Category:** Based on taxonomy (specific set of values) it describes the type of data the service implementation deals with.
- **ATM Activity Category:** Based on taxonomy (specific set of values) it scopes the expected use of the service implementation for a particular ATM activity.
- **ATM Stakeholder:** Based on a taxonomy (specific set of values) it scopes the expected use of the service implementation for a particular type of ATM stakeholder (e.g. Airline)
- **Region:** Based on taxonomy (specific set of values) it describes the applicability of the service implementation's functionality/data.
- **Support Profile:** Describes how the organization provides support for the service implementation.
- **Contact Profile:** Describes the QoS and contractual aspects of the service implementation.
- **End Point Overview List:** List of end points the service implementation is reachable.
- **Technical Interface:** Specifies the technical requirements to bind to the service.
- **Compliance Declaration:** It describes service implementation vis a vis the compliance criteria

Relationships

The following artefacts belong to a Service Implementation (i.e. a deletion of the parent Service Implementation implies these to be deleted):

- [Service End Point](#)
- [Service Technical Interface](#)
- [Service Compliance Declaration](#)

The following artefacts are associated with a Service Implementation (i.e. a deletion of the associated Service Implementation has no impact on these and vice versa):

- [Contract Profile](#)
- [Support Profile](#)

6.3.8 Service End Point

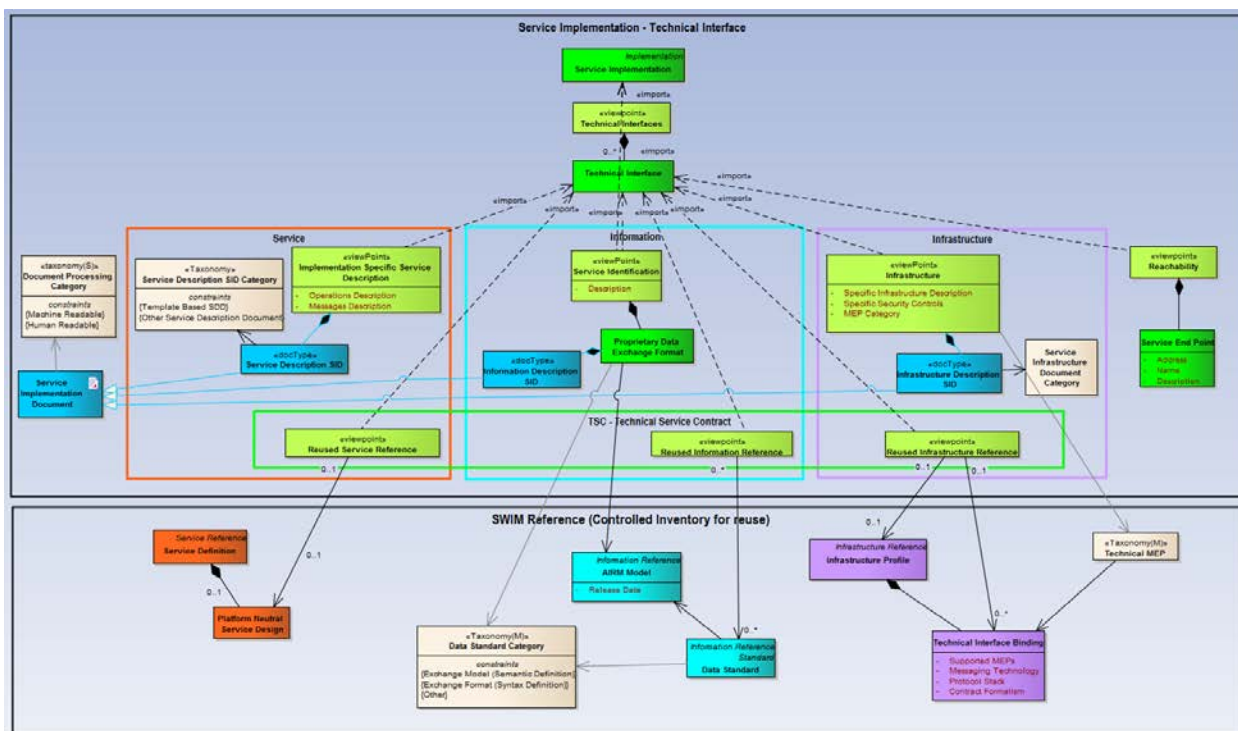
Description

This artefact describes a Service End Point that is the address of the service implementation. It is where the service implementation is listening to new requests and where the consuming system/application needs to connect to interact with the service implementation.

Types of information

- **Title:** Name given to the end point.
- **Description:** Description of the end point if required.
- **Address:** Location at which the service implementation is reachable (e.g. URL).

6.3.9 Service Technical Interface



Description

This artefact describes a Service Technical Interface also referred as a technical service contract. It provides information on how to interoperate with the service implementation it refers to. It enables to identify whether the implementation reuses technical specifications from the SWIM Reference (e.g. SWIM Infrastructure profiles, Service Definitions, standard exchange models) as well as the concrete specifications exclusive to this particular service implementation.

Types of information

- **Title:** Name given to the interface.
- **Description:** Overview of the technical interface.
- **Message Exchange Pattern.**
- **SWIM Platform Neutral Design (PNSD):** Indicates the reuse of a particular service design from the ISRM.
- **Interface Documentation List:**

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- **Data Exchange Standards:** Indicates the use of data standards that are part of the SWIM reference.
- **Proprietary Data Exchange Formats List:**
- **Infrastructure Profile:** Indicates the use of an infrastructure profile that is part of the SWIM reference.
- **Infrastructure Bindings List.** Indicates the bindings that are being used from the selected infrastructure profile.
- **Specific Infrastructure Description:** Specific information regarding the infrastructure of the service implementation.
- **End Points Overview List:** List of addresses of the service implementation.

Relationships

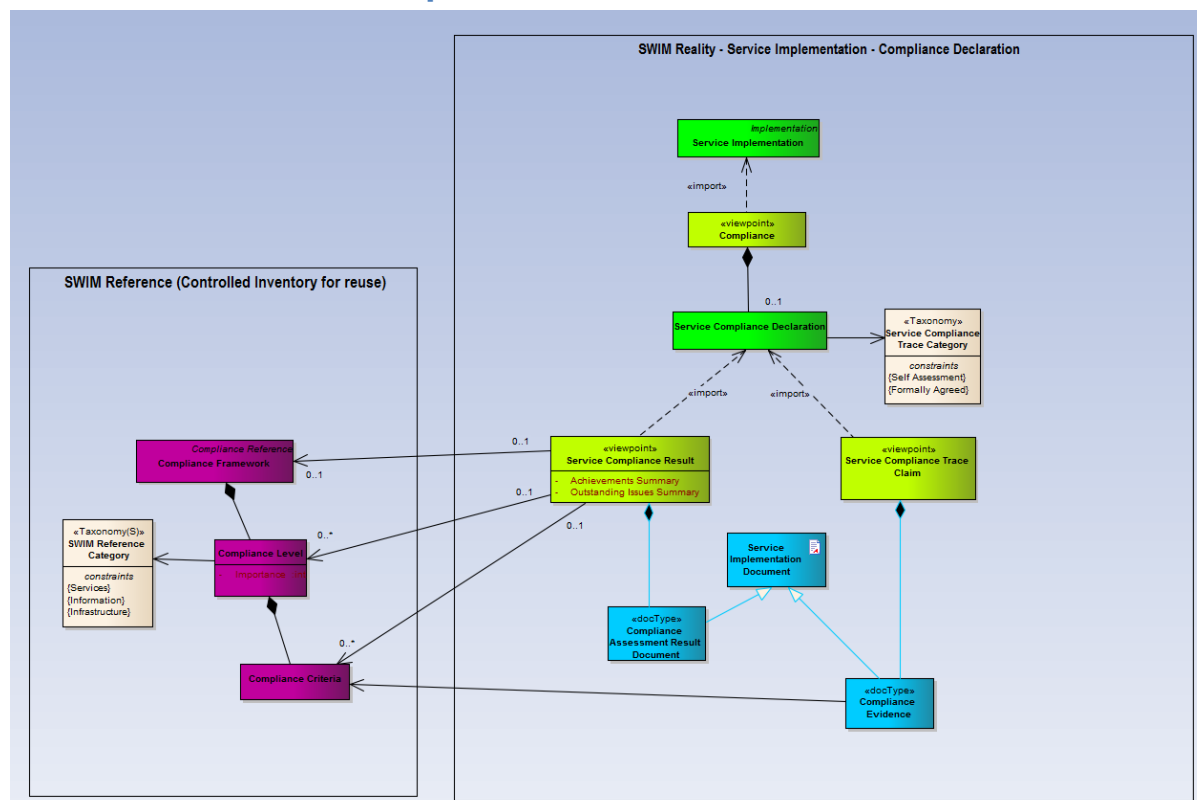
The following artefacts belong to an Service Technical Interface (i.e. a deletion of the parent Service Technical Interface implies these to be deleted) :

- [Proprietary Data Exchange Format](#)

The following artefacts are associated with an Service Technical Interface (i.e. a deletion of the associated Service Technical Interface has no impact on these and vice versa):

- [Platform Neutral Service Design](#)
- [Data Exchange Standard](#)
- [Infrastructure Profile](#)
- [Technical Interface Binding](#)

6.3.10 Service Compliance Trace



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Description

This artefact describes a Service Compliance Declaration. This is a description of how the service implementation aligns to the SWIM compliance levels and criteria.

Types of information

- **Title:** Name given to the compliance trace.
- **Description:** Description of the compliance process. Can be used to indicate general observations to the compliance of the service implementation.
- **Achievements Summary:** This is a short description of what has been achieved in the compliance of the service.
- **Outstanding Items Summary:** This is a short description of what still needs to be done for the compliance of the service.
- **Compliance Framework:** This is the framework version that is used by the provider of the implementation to indicate the compliance status of the service implementation.
- **Compliance Levels:** These are the compliance levels that have been achieved per category (Information, Service, and Infrastructure). This is based either on a self-assessment or a formal assessment by a recognised third party.
- **Compliance Levels and Criteria Overview List:** This indicates the concrete criteria that have been met by the service implementation by level of compliance.
- **Service Compliance Documentation:** These are the evidences provided to proof compliance to the criteria.

Relationships

The following artefacts belong to an Service Compliance Declaration (i.e. a deletion of the parent Service Compliance Declaration implies these to be deleted) :

- [Compliance Framework](#)..
- [Compliance Levels](#)..
- [Compliance Criteria](#)..

6.3.11 Service Definition

Description

This artefact describes a Service Definition. This describes a service at a logical level enabling multiple implementations (by different stakeholders) based on the same service definition to share common scope, description of functionality, behaviour and semantics. The detailed description of a service definition is provided by a platform neutral service design (PNSD) that describes the operations and logical interfaces of a service.

Types of information

- **Title:** Name given to the service definition.
- **ATM Activity Category:** Based on taxonomy (specific set of values) it describes the ATM activity this service relates to.
- **Service Design Maturity:** Based on taxonomy (specific set of values) it describes whether the service definition has an associated design, or it is still in status identified but no design available.
- **Summary:** An introduction to the service definition.

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- **Status:** A description of the specification status.
- **Intended Used:** A description of the intended use
- **Platform Neutral Service Design:** If it is the case (in accordance with the Service Design Maturity flag) it provides a pointer to the associated service design.
- **Service Definition Documentation:** Documentation associated to the service design

Relationships

The following artefacts belong to an Service Definition (i.e. a deletion of the parent Service Definition implies these to be deleted):

- [Platform Neutral Service Design](#)

6.3.12 Service Definition Progress

Description

This artefact describes a Service Definition Progress. The list of service designs that integrate the SWIM reference material are created by the SWIM community collaboratively and according a established methodology. The service definition progress indicates the status of the service design with regards to a common processes part of the SWIM service development methodology.

Types of information

- **Inputs:** For each phase (Identification, allocation, design, interface design) of the service definition process, it describes the steps required and accomplished for a particular service definition in order to enable the start of the current phase.
- **Outputs:** For each phase (Identification, allocation, design, interface design) of the service definition process, it describes the outputs produced for a particular service.
- **Exit Criteria:** For each phase (Identification, allocation, design, interface design) of the service definition process, it describes the steps required and accomplished for a particular service definition in order to enable the exit the current phase.

6.3.13 Platform Neutral Service Design

Description

This artefact describes a Platform Neutral Service Design. This is the detailed description of a service definition that describes the operations and logical interfaces of a service. This is an integrating element of the ISRM.

Types of information

- **Title:** Name of the service design
- **Version**
- **Description**
- **ATM Activity Category:** Based on taxonomy (specific set of values) it describes the ATM activity this service relates to.
- **Is part of:** List of ISRM versions the service design is part of.
- **Updated In:** ISRM version where the service was updated.

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- **Service Documentation:** .

Relationships

The following artefacts belong to an Platform Neutral Service Design (i.e. a deletion of the parent Platform Neutral Service Design implies these to be deleted) :

- [ISRM \(updated in\)](#)
- [ISRM \(part of\)](#)

6.3.14 ISRM Model

Description

This artefact describes an ISRM Model. This is a model built collaboratively by the SWIM community that provides for each service definition a detailed design that describes the service in terms of functionality, behaviour and interface.

Types of information

- **Title:** Name of the model. I.e. ISRM.
- **Description:** Description of overall updates/approach part of this version of the model.
- **Version**
- **Service Designs Overview List.** List of service designs that integrate the model
- **Model Documentation.**

Relationships

The following artefacts belong to an ISRM Model (i.e. a deletion of the parent ISRM Model implies these to be deleted) :

- **Title:** Name of the model. I.e. ISRM.
- **Description:** Description of overall updates/approach part of this version of the model.
- **Version**
- **Service Designs Overview List.** List of service designs that integrate the model
- **Model Documentation.**

6.3.15 ISRM CR

Description

This artefact describes an ISRM Change Request. This describes a change that has been requested for the evolution of the Information Service Reference Model (ISRM).

Types of information

- **Title:** Name summarizing the CR.
- **Description:** Short overview of the CR.
- **Requestor:** Name of the person requesting the change.
- **Documentation:** Documents further describing the change request.
- **ISRM (source):** ISRM Version that has been used to document the change.
- **ISRM (Target):** ISRM Version that will incorporate the change.
- **PN Service Design:** Service Design the change request refers to.

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Relationships

The following artefacts belong to an ISRM Change Request (i.e. a deletion of the parent ISRM Change Request implies these to be deleted):

- [ISRM \(source\)](#)
- [ISRM \(Target\)](#)
- [PN Service Design](#)

6.3.16 Data Exchange Standard

Description

This artefact describes a Data Exchange Standard. This describes an specification accepted by the SWIM community that describes the structures to be used for the exchange of information.

Types of information

- **Title:** Name of the standard.
- **Version.**
- **Description:** Summary of the purpose and scope of the standard.
- **Documentation:** Specification documents for the standards (e.g. schema files, UML models). Trace evidences to the AIRM if available.
- **Traceability to AIRM Overview List:** List of AIRM versions that the standard traces to.

Relationships

The following artefacts are associated with an Data Exchange Standard (i.e. a deletion of the associated Data Exchange Standard has no impact on these and vice versa):

- [AIRM Model](#)

6.3.17 Proprietary Data Exchange Format

Description

This artefact describes a Proprietary Data Exchange Format. This describes a data format used for exchanging information that is not commonly used and accepted by the SWIM community.

Types of information

- **Title:** Name of the standard.
- **Version.**
- **Description:** Summary of the purpose and scope of the standard.
- **Documentation:** Specification documents for the standards (e.g. schema files, UML models). Trace evidences to the AIRM if available.
- **Traceability to AIRM Overview List:** List of AIRM versions that the format traces to.

Relationships

The following artefacts are associated with a Proprietary Data Exchange Format (i.e. a deletion of the associated Proprietary Data Exchange Format has no impact on these and vice versa):

- [AIRM Model](#)

6.3.18 AIRM Model

Description

This artefact describes an AIRM Model version. The AIRM is a model collaboratively built by the SWIM community that represents civil, military and civil-military information constructs relevant to ATM. The use of the AIRM as a common reference will help ensure the harmonisation of derived models. This, in turn, will help reduce the costs in implementing an information sharing environment.

Types of information

- **Title:** AIRM.
- **Version.**
- **Description:** Overview of the changes that are incorporated in this version of the AIRM.
- **Data Entities Overview List:** These are the information elements that constitute the AIRM.
- **Model Documentation**

Relationships

The following artefacts belong to an AIRM Model (i.e. a deletion of the parent AIRM Model implies these to be deleted) :

- [AIRM Entity](#)

6.3.19 AIRM Entity

Description

This artefact describes an AIRM Entity. This describes an information element that is part of the AIRM.

Types of information

- **Title:** Name of the entity.
- **Description:** Definition of the data entity.
- **Subject Field:** Based on a taxonomy (specific set of values) it provides an ATM context to the entity.

6.3.20 AIRM CR

Description

This artefact describes an AIRM Change Request. This describes a change that has been requested for the evolution of the ATM Information Reference Model (AIRM).

Types of information

- **Title:** Name summarizing the CR.
- **Description:** Short overview of the CR.
- **Requestor:** Name of the person requesting the change.
- **Documentation:** Documents further describing the change request.
- **AIRM (source):** AIRM Version that has been used to document the change.
- **AIRM (Target):** AIRM Version that will incorporate the change.

Relationships

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The following artefacts belong to an AIRM Change Request (i.e. a deletion of the parent AIRM Change Request implies these to be deleted):

- [AIRM \(source\)](#)
- [AIRM \(Target\)](#)

6.3.21 Infrastructure Profile

Description

This artefact describes an Infrastructure Profile that is a coherent, appropriately-sized grouping of middleware functions/services for a given set of technical constraints/requirements that permit a set of stakeholders to realize Information sharing. It will also define the mandated open standards and technologies required to realize this coherent grouping of middleware functions/services.

Types of information

- **Title:** Name of the infrastructure profile.
- **Description:** Summary overview.
- **Version**
- **Documentation**
- **Technical Interface Bindings Overview List.** List of technical interface bindings that are supported in the infrastructure profile.

Relationships

The following artefacts belong to an Infrastructure Profile (i.e. a deletion of the parent Infrastructure Profile implies these to be deleted) :

- [Technical Interface Binding](#)

6.3.22 Technical Interface Binding

Description

This artefact describes a Technical Interface Binding that specifies a set of infrastructure protocols required for the implementation of a technical interface.

Types of information

- **Title:** Name of the TIB.
- **Technology:** Name of the technology the binding refers to.
- **Protocol Stack:** Set of protocols prescribed by the TIB.
- **Supported MEPs:** Set of message exchange patterns supported by the TIB.

6.3.23 Compliance Framework

Description

This artefact describes a Compliance Framework that establishes the process of assessing the conformance of a SWIM artefact (e.g. service implementation) against a commonly agreed list of criteria. The criteria are grouped in levels that enable a progressive approach to compliance.

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Types of information

- **Title:** Name of the framework.
- **Version**
- **Description**
- **Documentation**
- **Levels and Criteria Overview List:** Set of criteria by level.

Relationships

The following artefacts belong to an Compliance Framework (i.e. a deletion of the parent Compliance Framework implies these to be deleted) :

- [Compliance Level](#)

6.3.24 Compliance Level

Description

This artefact describes a Compliance Level that is a recognised status of compliance with associated criteria.

Types of information

- **Name.**
- **Description**
- **Compliance Criteria Overview List:** List of criteria required for this level of compliance.

Relationships

The following artefacts belong to an Compliance Framework (i.e. a deletion of the parent Compliance Framework implies these to be deleted) :

- [Compliance Criteria](#)

6.3.25 Compliance Criteria

Description

This artefact describes a Compliance Criteria that is a statement that determines what is required for compliance.

Types of information

- **Name.**
- **Description:** This is a statement with a concrete requirement for compliance.

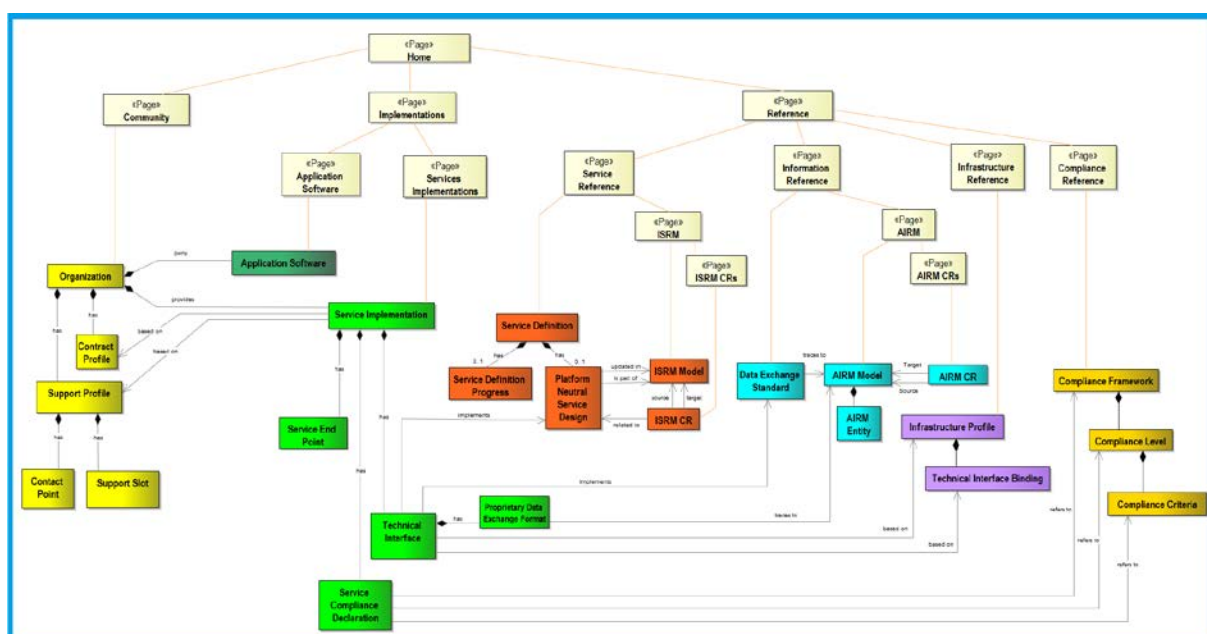
7 Appendix II - Wireframes

This section provides an overview to the user interface. It provides a schematic representation of the registry screens (wireframes) and the navigation sequence between them.

7.1 User Interface Navigation Sequence

The following diagram provides an overview to the different high level entities part of the SWIM Registry information model.

Those entities classified as information pages (stereotyped as Page) represent the user interfaces (i.e. screens). They enable the users to interact with the registry and provide a navigation sequence on how to access a particular area of the registry starting from the home screen (common entry point for all users).



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7.2 Wireframes

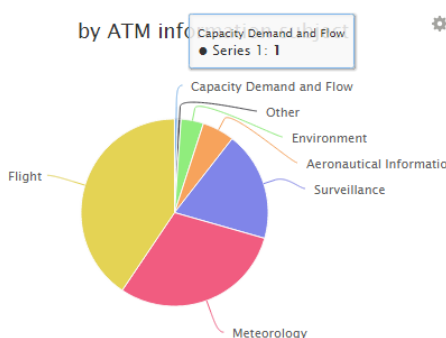
7.2.1 Home Page

My Registry 

Home

Service Implementations

by ATM info








● Series 1: 1

Capacity Demand and Flow
Other
Environment
Aeronautical Information
Surveillance
Flight
Meteorology



■ Capacity Demand and Flow ■ Other ■ Environment
■ Aeronautical Information ■ Surveillance ■ Meteorology
■ Flight

Popular Reference Content

-  **Application Software test app**
Appropriately build inexpensive scenarios vis-a-vis cross-media mindshare. Dynamically enable one-to-one schemas before...
-  **Technical Interface Binding Generic interface Binding. Over HTTPS GET/POST over TCP.**
-  **Service reference document European ATM Service Description for the AirportMETForecast Service**
This document is the result of the "Service Design" step of the B.4.3 Working Method on Services for the AirportMETForecast...
-  **Infrastructure reference document Technical Profiles**
This document describes the rational behind the SWIM TI Profiles.
-  **Compliance reference document Compliance Framework Criteria for SESAR Release 5 Exercises**
This specifies the set of criteria that are applicable in the context of SESAR release exercises, and states the different...

1 of 5 next >




Subscriptions

-  **Just Updated test app**
Appropriately build inexpensive scenarios vis-a-vis cross-media mindshare. Dynamically enable one-to-one schemas before...
[Unsubscribe](#) [Send Email](#)
-  **No Recent Updates EUROCONTROL**
EUROCONTROL, the European Organisation for the Safety of Air Navigation, is an intergovernmental organisation bringing...
[Unsubscribe](#) [Send Email](#)




Popular Tags

Flight (73) **Meteorology (54)** **Surveillance (34)** **Service Logical Model Document (31)** **AIRM Information Model entities Identified (28)** **EATMA Elements Identified (28)** **European ATM service design document (SDD) (28)** **ISRM update (28)** **Service allocation report (28)** **Service in ISRM (28)** **service interface operations described (28)** **ATM Network Management (21)** **ADD, TAD (20)** **DOD operational activity models (20)** **Service Allocation Report (SAR) (20)** **services have been allocated (20)** **standardisation roadmap (20)** **Updated IERs (SPR and INTEROP) (20)** **Business Justification (18)** **Business Justification (18)** **European ATM Service Identification Document SID (18)** **Information Exchange Requirements (18)** **ISRM update (18)** **New Service (18)** **OI step change request (18)**

Recently Registered Organisations/Implementations

-  **Service Implementation AeronauticalInformationMap**
The Service aims to publish Aerodrome Map Feature Types as described by EUROCAE in standard ED99C and Aerodrome Map Types as...
-  **Service Implementation NMB2BCommonServices**
These are the common services used by the NM B2B. All other NM B2B services make use of these services.
-  **Service Implementation FlightAware ADS-B data service**
The flightaware service provides ADS-B data of airplanes.

Recently Registered Reference Content

-  **Event Jumpstart Webinar 22 April 2015 at 17:00 CET**
We are very happy to introduce monthly webinars for the Jumpstart software. The main goal is to get people started with this...
-  **Support Profile FlightAware support**
-  **Support Profile Jump-Start Application Support Profile**
Support hours and contact points.

Description

This page is the entry point for all authenticated users. It provides an overview to the registry content. It enables to keep track of what is popular and recent content. It also enables the user to express interest in specific content and to remain informed (e.g. email notifications) when this content is updated.

Navigation

This page enables to go to:

- Any popular/recent content
- As with any other screen, the menu enables to navigate to:


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- Community Page
- Implementation Pages (services and applications)
- Reference Pages (information, services, infrastructure, compliance)
- Activities Pages (events and news)
















7.2.2 Community Page

Swim community (Edit)  Home



Add

ALL **SESAR MEMBER**

| | | | | |
|--|--|--|---|--|
|  4D-Aerospace/University of Salzburg |  A-Syst |  AC-B |  ACL International |  Airbus Defence and Space - France |
|  Amadeus |  Aslogic - UAB |  ATMB China |  ATMINST |  ATMOSPHERE |
|  ATNS South Africa |  Austrocontrol |  Avionix Software S.L. |  Avitech |  BJO-Data GmbH |

Description

This page provides an overview to registered organizations. It enables to see a geographical representation as well as a visual listing based on the logos of the organizations.

Navigation

This page enables to go to:

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- Organization Page

7.2.3 Organization Page

EUROCONTROL (Edit) ? Home







EUROCONTROL
Unsubscribe

Website: [EUROCONTROL's Website](#)
Main Contact: swim-registry@eurocontrol.int
Address: Raketstraat 96, 1130 Brussels, Belgium
Organisation type: SESAR Member



EUROCONTROL, the European Organisation for the Safety of Air Navigation, is an intergovernmental organisation bringing together 39 Member States and the European Community. Founded in 1960, it is a civil-military organisation that has developed into a vital European repository of air traffic management (ATM) excellence, both leading and supporting ATM improvements across Europe.

Services (Add) - Any -



-  **NMB2BCommonServices**
These are the common services used by the NM B2B. All other NM B2B services make use of these services.
-  **AIMService**
This service group is aimed at giving access to information of a general nature, e.g. AIM, headline news, etc.
-  **AirspaceAvallibilityservice**
This service is ment for querying and modifying the airspace availability information;this includes the support of the Flexible Use of Airspace (AUP/...
-  **AirspaceStructureService**
AirspaceStructureService has been developed for querying and modifying airspace structure. The AirspaceServices NOP/B2B service group is intended to...

1 2 next last »

Applications (Add) - Any -

-  **test app**
Appropriately build inexpensive scenarios vis-a-vis cross-media mindshare. Dynamically enable one-to-one schemas before emerging growth strategies....
-  **Jumpstart**
Jumpstart is a System Wide Information Management (SWIM) demonstrator.

Documentation (Add) - Any -

-  **NOP FactSheet**
The Network Operations Portal (NOP) allows a common view of the European ATM network situation to be shared with the whole aviation community. It is a means of interactively accessing the European ATFCM network situation, which incorporates the existing information and user requests, provides traffic demand and capacity plans, identifies bottlenecks, and presents the ATFCM and ASM measures planned in order to counterbalance them.
-  **B2B Services Website**
<https://www.eurocontrol.int/tags/b2b-web-services>

Description

This page provides a description of an organization and an overview of the assets that it has registered. Concretely it provides and overview to 1) Service Implementations provided by the organization, 2) Applications provided by the organization, 3) Generic documents

Navigation

This page enables to go to:

- Service Implementation Page
- Application Software Page

founding members



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7.2.4 Service Directory Page

Services (Edit) 

[Home](#) » [Implementations](#)








This is an overview to the SWIM service implementations registered by the service providers. A service implementation is a deployed instance of a service that enables the execution of an action on a system (e.g. record a flight plan) or the access to information (e.g. weather forecast). It is provided by an organization that supports it committing to a certain level of quality (e.g. availability) and states the conditions that regulate the relationship with the consumers. It is enabled by software installed on a computer reachable remotely over a network by other computers (that host applications) via a technical interface that establishes the requirements on how to interact with it.

Filters

| Reality context | Version category | Title | Description |
|--|------------------|-------|-------------|
| - Any - | - Any - | | |
| Advanced filters <ul style="list-style-type: none"> ▶ Current state ▶ ATM activity category ▶ Regions ▶ Registration status ▶ ATM data category ▶ Implementation status ▶ ATM Flight phases ▶ Implementation maturity ▶ ATM stakeholders | | | |

Services [Add](#)

| | |
|---|--|
|  | FlightFilingService Ready for consumption Operational Current and Supported FlightFilingService enables the creation, update and cancellation of a flight plan to the Network Manager. ATM Network Management Flight Airspace User, Network Manager |
|  | FlightManagementService Ready for consumption Operational Current and Supported FlightManagementService provides requests aimed at managing flight plans and flights. ATM Network Management Flight |
|  | FlightPreparationService Ready for consumption Operational Current and Supported FlightPreparationService is intended to provide requests aimed at easing the preparation phase of the flight plan (prior to its filing to NM). ATM Network Management Flight |
|  | MeasuresService Ready for consumption Operational Current and Supported ThisMeasureService is intended to provide querying and update capabilities on ATFCM (Air Traffic Flow and Capacity Management) measures. Shared Information Service Management Aeronautical Information |
|  | AirspaceStructureService Ready for consumption Operational Current and Supported AirspaceStructureService has been developed for querying and modifying airspace structure. The AirspaceServices NOP/B2B service group is intended t Aeronautical Information Management Aeronautical Information |

Description

This page provides an overview to the service implementations. It enables the discovery of services attending to different categories (e.g. Implementation status, ATM Data Category,...)

Navigation

This page enables to go to:

- [Service Description Page](#)

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7.2.5 Service Description Page

FlightFilingService (Edit) ?

Home



Subscribe

Organisation name: EUROCONTROL
Implementation status: Ready for consumption
Version category: Current and Supported

ATM activity category:
ATM Network Management

ATM data category:
Flight

ATM stakeholders:
Network Manager Airspace User

Regions:
Europe

[Registration Process](#) Q | ✎

Service description

FlightFilingService enables the creation, update and cancellation of a flight plan to the Network Manager. FlightFilingService is intended to provide requests aimed at filing flight plan, as regards the following types of messages: extended flight plan update request and creation request and replay, flight plan update request and replay, flight plan cancellation request and replay, flight departure request and [See full description](#)

Service Technical Interface

Add



Technical Interface

With NM B2B Web Services, EUROCONTROL gives to eligible operational stakeholders a set of programming interfaces enabling the development of...

Service general documentation

Add



FlightServices User Manual

Technical Summary

This document makes reference to the following external documents (an external document being defined as a document not produced by NM)

SWIM Compliance Trace

Add



Validation Exercises Compliance Framework

Self Assessment

Infrastructure : Infrastructure Compliant

Services : Service Compatible

Infrastructure : Infrastructure Ready

[See details](#)

Events

Add



Version 19 Release

A new version of the service will be released in March 2015.



Support hours

Continuous support 24/7
0:00 to 24:00



Contact points

CSO (Customer technical Service desk & Operations) ,
<remove this>nm.cso.help-desk@eurocontrol.int , +32 2 745 1997

Quality of Service Conditions

Reliability

Availability: 99.9%

Fault Tolerance: Highly Redundant

Recoverability: 2 hours contingency recovery

Security

Accountability: Accountability guarantee

Authenticity: Authentication required

Confidentiality: Confidential information protected

Integrity: Integrity protected

Non Repudiation: Non repudiation controls

Performance

Capacity: 100 queries/second

Time Behaviour: 1 s processing commitment

Contractual Documents and Procedures



Access Conditions (EUROCONTROL Website Link)

This is a link to the website of EUROCONTROL where this informatin is officially stated.

Description

This page provides a view to the description of the service implementation.

Navigation

This page enables to go to:

- Service Technical Interface Page
- SWIM Compliance Declaration Page

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7.2.6 Service Technical Interface Page

Technical Interface (Edit) ?

[Home](#)



With NM B2B Web Services, EUROCONTROL gives to eligible operational stakeholders a set of programming interfaces enabling the development of applications using web services for establishing direct interfaces with the Network Manager's operational systems and data.

For interoperability reasons, NM B2B Web Services is based on open web services technologies that do not require the installation of proprietary software on the User's side and follows the architecture standards recommended by the SWIM concept.

[See full description](#)

Message exchange pattern: Request / Reply

Service

Platform Neutral Service Design (SWIM Reference)

NO INFORMATION AVAILABLE

Service Documentation (implementation specific) [Add](#)



FlightFilingService WSDL

Machine Readable

This is the machine readable description of the service interface, describing supported operations and messages.

Information

Data Exchange Standards (SWIM Reference)

NO INFORMATION AVAILABLE

Data Exchange Formats (implementation specific) [Add](#)



FlightFilingService Schemas 18.05

These are all schemas used by the Flight Filing service

Infrastructure

SWIM Infrastructure Profile (SWIM Reference)



Yellow Profile 3.00

Many types of information sharing in ATM do not have an immediate high safety critical context and can be satisfied by infrastructure that is less...

Infrastructure Description (implementation specific)

Specific Infrastructure Description:

Specific Security Controls:

Authentication based on Client Side Certificates

SWIM Infrastructure Binding (SWIM Reference)



Generic interface Binding. SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP

+ Contract - formalism of contract description: WSDL 1.1 and optionally WSDL 2.0 both including WS-SecurityPolicy - minimum: OASIS WS-N and structure of Topics - reference: OASIS WS-N, ISRM
SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP

End Points (implementation specific) [Add](#)



End Points (part of WSDL)

https://www.nm.eurocontrol.int:16443/B2B_OPS/gateway/spec/18.5.0/

Description

This page provides a view to the technical interface of a service implementation.

Navigation

This page enables to go to:

- Selected Platform Neutral Service Designs
- Selected Data Exchange Standards
- Technical Profile
- Infrastructure Binding

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7.2.7 SWIM Compliance Declaration Page

Compliance Declaration (Edit) ?

Home



Subscribe

Compliance framework: Validation Exercises Compliance Framework
Compliance levels: Infrastructure Compliant, Service Compatible, Infrastructure Ready

Summary

Conclusions and way forward:

This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data,

Compliance criteria feedback:

This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data, This is just test data,

Workflow ? | ✎

Compliance levels and criteria

Service Ready

Services



IS-1 Service Operations Mapped

The operations described in the TSC are mapped to the operations required by the SDD, i.e. each operation in the SDD is mapped from an operation in...



IS-2 Messages Mapped

For all the service operations mapped as per IS-1, the physical message description given in the TSC shall be mapped to the logical service...



IS-3 Message Exchange Pattern Mapped

For all the interfaces involved in the mapping as per IS-1, the messaging exchange patterns (MEPs) stated in the TSC are matched to the MEPs required...

Service Compatible

Services



IS-4 Service Design part of ISRM

The referenced logical service is part of the ISRM. Evidence: The SDD describing the logical service references an ISRM version containing this...

Service Compliant

Services



IS-5 Non Functional Requirements Mapped

For each of the implemented interfaces the NFRs required by the SDD are mapped to either NFRs in the TSC or fulfilled by design decisions. Evidence...

Information Ready

Information

Infrastructure Compliant

Infrastructure



TI-7 Service Implementation deployed on infrastructure compliant with binding requirements

The service implementation is deployed on an infrastructure that fulfill the requirements of the binding indicated in the TSC (Technical Interface)...

Service compliance documentation

Add



Asdfasdf

Compliance Evidence

asdgafsdgagdfsdgagdfsg fg asfga sd

TI-1 SWIM TI Profile Referenced

Infrastructure



test

Compliance Evidence

IN-1 AIRM Trace-ability (Level1)

Information

Description

This page provides a view to the criteria met by the service implementation and the documentation evidences.

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7.2.8 Application Software Directory Page

Application Software (Edit) 

[Home » Implementations](#)



This is an overview to SWIM enabled Application Software. Application software is a type of software that when installed on a computer performs tasks directly for a user. A user interacts with an application software via a Human Machine Interface (HMI). The registry will register application software agnostic of the installations that have been done of that software.

Filters

Version category

- Any -

Title

Description

▶ [Advanced filters](#)

Applications

[Add](#)



Jumpstart Current and Supported

Jumpstart is a System Wide Information Management (SWIM) demonstrator.

ATM Information Management, Aeronautical Information Management, Flight Information Management, Meteorological Information, MET Information Management, Shared Information Service Management, Airport Management, Trajectory Management, Trajectory Planning, Route Assignment And Guidance, ATM Network Management, Route Design, Airspace And Surface Structure Design, Airspace And Surface Structure Allocation, Airspace Access, Demand And Capacity Balancing Flight, Aeronautical Information, Meteorology, Capacity Demand and Flow, Surveillance, Other Airport (ramp), Take Off, Departure, En-route, Oceanic, Arrival Airport Operator, Airspace User, ANSP, Network Manager



test app Current and Supported

Appropriately build inexpensive scenarios vis-a-vis cross-media mindshare.

Communication Infrastructure, Aeronautical Information Management, Meteorological Information, MET Information Management, Shared Information Service Management, Conflit Management, Collision Avoidance, Separation Provision, Airport Management, Trajectory Planning, Route Assignment And Guidance, ATM Network Management, Traffic Synchronisation Flight, Aeronautical Information, Meteorology, Environment Airport (ramp), Take Off, Departure Airport Operator, ANSP

Description

This page provides and listing of all application software registered .

Navigation

This page enables to go to:

- [Application Software Description Page](#)

founding members



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7.2.9 Application Software Description Page

Jumpstart (Edit) ?

Home



Subscribe

Version: 1.4.3
Open Source: Yes
Payable: No
Version category: Current and Supported

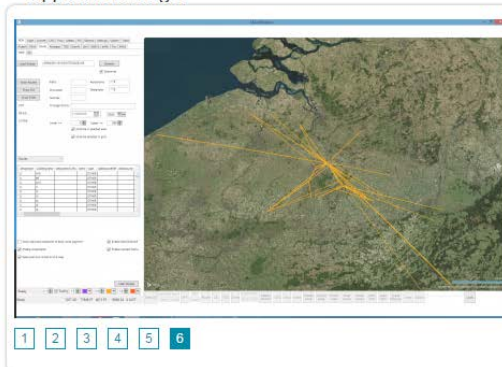
ATM activity category:
ATM Information Management
Aeronautical Information Management
Meteorological Information Flight Information Management
MET Information Management
Airport Management Shared Information Service Management
Trajectory Planning Trajectory Management
ATM Network Management Route Assignment And Guidance
Airspace And Surface Structure Design Route Design
Airspace Access Airspace And Surface Structure Allocation
[Show details](#)

[Application Registration](#) Q | [✉](#)

Application Description

Jumpstart is a System Wide Information Management (SWIM) demonstrator. It is an application written in C# for the Microsoft .Net framework in the form of a desktop-class application, using OS-specific features (like threads and the .Net API for GUI). It allows web services consumption for integration and testing purpose. It now also runs as a web service provider for in-house developed web services. It is now the *de*
[See full description](#)

Application Images



Overview Documentation



Jumpstart User Documentation

This manual provide you with a whole range of topics that are interesting if you want to work with the Jumpstart software.

Documentation (Add)

ATM data category

Documentation type

Target Audience



Jumpstart User Documentation

This manual provide you with a whole range of topics that are interesting if you want to work with the Jumpstart software.

Application Files

Add



Source code Jumpstart

This is the zip file with the source code of the Jumpstart software.



Installation guide Jumpstart

This is the installation guide for Jumpstart. It will explain the procedure to install and configure Jumpstart.

There are files for this application for which you don't have access. Please [request access](#) to see these application files.

Data Exchange Standards Used by the Application



AIXM 5.01

The Aeronautical Information Exchange Model (AIXM) is designed to enable the management and distribution of Aeronautical Information Services (AIS)...



WXXM 2.00

The Weather Information Exchange Model (WXXM) is a logical data model that combines the concepts from the high-level WXCM packages into a...



FIXM 3.00

The Flight Information Exchange Model (FIXM) is a data interchange format for sharing information about flights throughout their lifecycle. FIXM...

Consumed Service Implementation by the Application



FlightFilingService

FlightFilingService enables the creation, update and cancellation of a flight plan to the Network Manager. FlightFilingService is intended to provide...



FlightManagementService

FlightManagementService provides requests aimed at managing flight plans and flights. FlightFilingService is intended to provide requests aimed at...



FlightPreparationService

FlightPreparationService is intended to provide requests aimed at easing the preparation phase of the flight plan (prior to its filing to NM)...

1 2 3 next last »

Events

Add



Jumpstart Webinar 22 April 2015 at 9:00 CET

We are very happy to introduce monthly webinars for the Jumpstart software. The main goal is to get people started with this demonstration and...



Support hours

Business Hours
Monday 9:00 to Friday 17:00



Contact points

SWIM Support Group ,
swim@eurocontrol.int

Description

This page provides a description of application software.

Navigation

founding members



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This page enables to go to:

- Data Exchange Format Page (supported by the application)
- Service Implementation Description Page (consumable by the application)

7.2.10 Service Definitions Directory Page

Service Reference (Edit) ?

Home » Reference



ISRM

A **service definition** describes a service at a logical level enabling multiple implementations (by different stakeholders) based on the same service definition to share common scope, description of functionality, behaviour and semantics. The detailed description of a service definition is provided by a platform neutral service design (PNSD) that describes the operations and logical interfaces of a service.

ATM activity category

- Any -

Description

Service Definitions

Add



AerodromeMapInformation Service Definition

The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B. The Service design...



AeronauticalInformationFeature Service Definition

This service provides aeronautical information features to the stakeholders. This service allows selecting the required aeronautical information...



AeronauticalInformationMap Service Definition

The AeronauticalInformationMap service provides the CDM for the provision of aeronautical information maps. The purpose of the service is the...



AeronauticalInformationNotification Service Definition

The AeronauticalInformationNotification service provides the CDM for the provision of aeronautical information alerts about new information being...



AirportMETForecast Service Definition

The service covers the dissemination of customized airport meteorological forecasts over SWIM



AirportMETInducedCapacityReduction Service Definition

The AirportMETInducedCapacityReduction service supplies the short term maximum airport capacity as constrained by the predicted weather, to consumers...



AirportMETNowcast Service Definition

The Airport Met Nowcast Service provides a Meteorological prediction of the weather at the airport concerned, at a small interval in the future...



AirportMETObservation Service Definition

The AirportMETObservation service covers the dissemination of customized airport meteorological observations over SWIM, which are shared with a wide...



ARESActivation Service Definition

The ARESActivation service provides the CDM to coordinate the activation of an ARES between the ASM and the concerned ACCs. The ARESActivation...



ARESDeactivation Service Definition

The ARESDeactivation service provides the CDM to coordinate the deactivation of an ARES between the ASM and the concerned ACCs. Certain minutes...



1 2 3 4 next » last »

Service Method Documents

Add



Service Design Description [TEMPLATE] 1.00

This template can be used for the documentation of a service design.

Description

This page provides a directory of service definitions.

Navigation

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This page enables to go to:

- Service Definition Page
- AIRM Page

7.2.11 Service Definition Description Page

AerodromeMapInformation Service Definition (Edit) 

[Home](#)



[Subscribe](#)

ATM activity category: Aeronautical Information Management

[Progress](#)

Summary

The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B. The Service design process of AMIS has been conducted in the Fast Track 6 initiative.

The service is named Aerodrome Map Information Service, abbreviated to AMIS and was modelled with two service interfaces each with several operations. The two service interfaces are:

[See full description](#)

Status

Requirements in relation to the operational context identified have their origin in:

- 6.7.1 D39 OSED V2, Reference [30]
- 6.7.1 D47 OSED ITAP, Reference [31]
- 6.7.2 D74 Updated SPR, Reference [32]
- 6.7.2 D73 Updated OSED, Reference [33]
- 12.2.2 D10 OSED for Step 2 (in particular Annex B "OSED IEP"), Reference [34]

[See full description](#)

Intended Use

An AMDB or parts of it is primarily intended to be used as map layers.

Multiple filter arguments could be used such as; aerodrome identifier (ICAO-code), FeatureTypeName, Identifier, temporality.

The service is provided by a AMDB data provider which might be an AIS provider, a commercial data house provider, etc.

The consumer of the service could be airport systems related to displaying the information for the airside ground controllers, vehicle display, aircraft taxiing operations and ATC controllers. It may also be consumed by other airport management systems, Airline Operations Centres, pilot briefing and other airport stakeholders consuming airport layout

[See full description](#)

Platform Neutral Service Design (ISRM)

[Add](#)



AerodromeMapInformation Service 1.02

The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B. The Service design...

Description

This page provides a description of a service definition.

Navigation

This page enables to go to:

- Platform Neutral Service Design Page

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7.2.12 PNSD Page

AerodromeMapInformation Service ([Edit](#)) ?

[Home](#)



[Subscribe](#)

The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B. The Service design process has been conducted in the Fast Track 6 initiative.

The service is named AerodromeMapInformation Service and was modelled with two service interfaces each with several operations.

The two service interfaces are:

- AccessAMDBFeatures: This interface provides the user with the requested features from the AMDB (Airport Map Database). The

[See full description](#)

Is part of: ISRM 1.02

Updated in: ISRM 1.02

Version: 1.02

[Aeronautical Information Management](#)

Documentation

[Add](#)



European ATM Service Description for the AerodromeMapInformation Service 2.01

Created in: The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B.

The Service design process has been conducted in the Fast Track 6 initiative. The service is named AerodromeMapInformation Service and was modelled

with two service interfaces each with several operations. The two service interfaces are: - AccessAMDBFeatures: This interface provides the user with the

requested features from the AMDB (Airport Map Database). The features capable of being requested is a subset of the total set of feature types available

from the AFIS (ATM Feature Information Service) being developed under FT13. The features returned by the service are those that meet the filter criteria set

by the user. - AccessAMDBMap: Returns to the user the map of the airport in a graphical form with the features rendered according to a pre-set set of styles.

Description

This page provides a description of a platform neutral service design.

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7.2.13 ISRM Version Page

ISRM (Edit) ?

[Home](#)



The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM Stakeholders as logical models for information services .

Version: 1.02

[Subscribe](#)

ATM activity category

- Any -

Description

Platform Neutral Service Designs

[Add](#)



AirportMETNowcast Service 1.01

The AirportMETNowcast Service provides a Meteorological prediction of the weather at the airport concerned, at a small interval in the future. This...



AerodromeMapInformation Service 1.02

The Service aims to publish Aerodrome Map Features and the Maps themselves as described by EUROCAE in standard ED99C and ED119B. The Service design...



AeronauticalInformationFeature Service 1.02

This service provides aeronautical information features to the stakeholders. This service allows selecting the required aeronautical information by...



AeronauticalInformationMap Service 1.02

The AeronauticalInformationMap service provides the CDM for the provision of aeronautical information maps. The purpose of the service is the...



AeronauticalInformationNotification Service 1.02

The AeronauticalInformationNotification service provides the CDM for the provision of aeronautical information alerts about new information being...

1 2 3 4 5 6 7 8 next » last »

ISRM Model Documentation

[Add](#)



DEMO Test ISRM Model Docs 1.00

Professionally fabricate corporate metrics with enabled mindshare. Dynamically overwhelm extensible convergence with interactive metrics. Rapidiously innovate e-business interfaces after fully tested scenarios. Authoritatively leverage other's sticky bandwidth with proactive web-readiness. Synergistically develop seamless relationships rather than cross-media services.

Description

This page provides a list of service designs per version of the ISRM.

Navigation

This page enables to go to:

- [Service Design Description Page](#)

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7.2.14 ISRM Page

ISRM (Edit) 

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[Change Request](#)

The **ISRM** is a model built collaboratively by the SWIM community that provides for each service definition a detailed description in terms of functionality, behaviour and interface. A service description in the ISRM is called **platform neutral service design (PNSD)**. As the name indicates, there are no platform specific details allowing different stakeholders to choose the most suitable infrastructure for their implementation of the service.

ISRM Models

[Add](#)



ISRM 1.02

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...



ISRM 1.01

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...



ISRM 1.00

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...



ISRM 0.50

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...



ISRM 0.06

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...



ISRM 0.04

The Information Service Reference Model (ISRM) provides the service-oriented specifications of information exchanges between different ATM...

ISRM Method Library

[Add](#)



ISRM Rulebook 1.10

A service-level agreement is an agreement between two or more parties, where one is the customer and the others are service providers. This can be a legally binding formal or an informal "contract" (for example, internal department relationships). The agreement may involve separate organisations, or different teams within one organisation. Contracts between the service provider and other third parties are often (incorrectly) called SLAs – because the level of service has been set by the (principal) customer, there can be no "agreement" bet



ISRM Primer

A service-level agreement is an agreement between two or more parties, where one is the customer and the others are service providers. This can be a legally binding formal or an informal "contract" (for example, internal department relationships). The agreement may involve separate organisations, or different teams within one organisation. Contracts between the service provider and other third parties are often (incorrectly) called SLAs – because the level of service has been set by the (principal) customer, there can be no "agreement" bet

Description

This page provides a listing of all ISRM model versions.

Navigation

This page enables to go to:

- [ISRM Model Version Page](#)

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7.2.15 Information Reference Page

Information reference (Edit) 

[Home](#) » [Reference](#)



AIRM

This page provides an overview to the SWIM information reference material. As the rest of the reference material, it provides guidance for the implementation of SWIM services, and it is referenced in the SWIM compliance criteria. The information reference focuses on the semantics and syntactic aspects of information exchanged via services

Data Standards

[Add](#)



AIXM 5.01

The Aeronautical Information Exchange Model (AIXM) is designed to enable the management and distribution of Aeronautical Information Services (AIS)...



WXXM 2.00

The Weather Information Exchange Model (WXXM) is a logical data model that combines the concepts from the high-level WXCM packages into a...



FIXM 3.00

The Flight Information Exchange Model (FIXM) is a data interchange format for sharing information about flights throughout their lifecycle. FIXM...

Information Method Documents

[Add](#)



AIRM Compliance Handbook

This document provides guidelines required for producing the mappings required by the information compliance criteria.



AIRM Compliance Rulebook

This document provides the rules to be respected for producing the mappings required by the information compliance criteria.

Description

This page provides an overview to all recommended data exchange standards .

Navigation

This page enables to go to:

- [AIRM Page](#)
- [Data Exchange Description Page](#)

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7.2.16 AIRM Page

AIRM (Edit) 

[Home](#)

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The ATM Information Reference Model (AIRM) contains the information constructs to be used throughout SESAR. AIRM ensures that exchanged information shares the same meaning at its origin and its destination. This will enable systems to easily combine and process information from multiple sources. The AIRM represents civil and military information constructs relevant to ATM and is a key element of SWIM.

AIRM Models

[Add](#)



AIRM Model (3.2) 3.02

The general objective of this release is to: Infrastructure layer to be made stable Stakeholders subject field to be made stable

AIRM Method Documentation

[Add](#)



AIRM Primer 1.20

This document explains some basic notions of the AIRM.

Description

This page provides an overview to the different versions of the AIRM.

Navigation

This page enables you to go to:

- [AIRM Version Description Page](#)

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7.2.17 AIRM Version Page

AIRM Model (3.2) (Edit) ?

Home



The general objective of this release is to:

- Infrastructure layer to be made stable
- Stakeholders subject field to be made stable

Subscribe

Version: 3.02

ATM data category

- Any -

Description

Data entities

Add

- AircraftDerivedData**
A vector describing the current state of an aircraft or a vehicle, e.g. position, speed, acceleration
Surveillance
- AircraftOperationalStatus**
Aircraft Operational Status
Surveillance
- ADSBTtargetReport**
Defines which target reports are used by the Multi Sensor Tracking.
Surveillance
- MOPSVersion**
The Minimum Operational Performance Specification (MOPS) version used by aircraft to supply ADS-B information.
Surveillance
- SystemTrack**
A target report resulting from the correlation, by a special algorithm (tracking) of a succession of radar reported positions for one aircraft. The...
Surveillance
- TrackMode4Code**
Availability and result of a Mode 4 interrogation
Surveillance
- PositionTimestamp**
Position Time stamps
Surveillance
- TargetStatus**
Status of the target
Surveillance
- TrackStatus**
Status of a track
Surveillance
- VelocityTimestamp**
Time of velocity messages
Surveillance

1 2 3 4 5 6 7 8 9 next last »

AIRM model documentation

Add

- AIRM Model 3.02**
AIRM Model
- AIRM Model Accompanying Documentation 1.00**
Dynamically transform client-based paradigms via competitive sources. Efficiently visualize...
AIRM Model

Description

This page provides a view to the CLDM data entities of a particular version of the AIRM.

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7.2.18 Infrastructure Profiles Page



Infrastructure Reference (Edit) 

[Home » Reference](#)





The infrastructure reference focuses on the technical components that enable the exchange of information via services. **Infrastructure** is a set of software components distributed over a network infrastructure providing functions enabling collaboration among ATM systems.

Infrastructure Profile Add

-  **Yellow Profile 3.00**
Many types of information sharing in ATM do not have an immediate high safety critical context and can be satisfied by infrastructure that is less...
-  **Blue profile 1.00**
This is the profile foreseen for ATC to ATC communication.
-  **Purple Profile 1.10**
This is the profile used for Air-Grown communication.

Infrastructure Reference Documents Add

-  **Technical Profiles 3.00**
This document describes the rational behind the SWIM TI Profiles.
-  **Infrastructure Architecture 3.00**
This document refines the functional decomposition defined in the overall SESAR architecture (ADD produced by B4.3) for the SWIM Technical Infrastructure (SWIM-TI).

Description

This page provides a list of infrastructure profiles.

Navigation

This page enables to go to:

- [Technical Profile Description Page](#)

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7.2.19 Technical Profile Description Page

Yellow Profile (Edit) ?

[Home](#)








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Many types of information sharing in ATM do not have an immediate high safety critical context and can be satisfied by infrastructure that is less demanding and less sophisticated. Many services can be satisfied by a middleware providing generic functionality with a "Best Effort" QoS. The YP is explicitly targeted at: 1) support for a wide variety of interactions in a flexible manner and that is affordable for the service consumer. 2) the interaction must be able to run over Internet and must be sufficiently secured 3) use of technology based on the Web Services stack of standards 4) the technology must be supported out-of-the-box by the mainstream development frameworks as well as mainstream

[See full description](#)
Version: 3.00

Technical Interface Bindings

[Add](#)

-  **Generic interface Binding. Over HTTPS GET/POST over TCP.**
+ Contract - formalism of contract description: not standardised - minimum: not applicable - reference: ISRM
HTTPS GET/POST over TCP | Web Services
SRR-MEP
-  **Generic interface Binding. Plain Old XML (POX) over HTTPS POST over TCP**
+ Contract - formalism of contract description: described in XSD - minimum: not applicable - reference: ISRM
Plain Old XML (POX) over HTTPS POST over TCP | XML Web Services
SRR-MEP
-  **Generic interface Binding. SOAP 1.1 over HTTPS POST over TCP**
+ Contract - formalism of contract description: WSDL 1.1 and optionally WSDL 2.0 - minimum: OASIS WS-N and structure of Topics - reference: OASIS WS-N, ISRM
SOAP 1.1 over HTTPS POST over TCP | SOAP 1.1 Web Services
SRR-MEP, PSPUSH-MEP, PSPULL-MEP
-  **Generic interface Binding. SOAP 1.2 over HTTPS POST over TCP**
+ Contract - formalism of contract description: WSDL 1.1 and/or WSDL 2.0 - minimum: OASIS WS-N and structure of Topics - reference: OASIS WS-N, ISRM
SOAP 1.2 over HTTPS POST over TCP | SOAP 1.2 Web Services
SRR-MEP, PSPUSH-MEP, PSPULL-MEP
-  **Generic interface Binding. SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP**
+ Contract - formalism of contract description: WSDL 1.1 and optionally WSDL 2.0 both including WS-SecurityPolicy - minimum: OASIS WS-N and structure of Topics - reference: OASIS WS-N, ISRM
SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP | SOAP 1.1 Web Services with WS-Security

Description

This page provides a description of an infrastructure profile and all its bindings .

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8 Appendix III – Identified Taxonomies

The following taxonomies have been identified for the classification of entities in the registry. Taxonomies play a key role in supporting the discovery of information in the registry (e.g. filtering by ATM operational activities), however these taxonomies are not defined by the registry project and need to be imported from the appropriated source. The identified taxonomies are:

- Registration Status
- Implementation Status
- Implementation Maturity
- Version Category
- ATM Data Category
- ATM Activity Category
- ATM Flight Phase
- ATM Stakeholder
- Geographic Scope
 - Geographic Region
- Charging Options
- Contractual Information Category
- Service Behaviour Category
- Data Exchange Standard Category
- Document Processing Category
- Compliance Assessment Status
- Service Type
- Message Exchange Pattern

8.1 Registration Status Taxonomy

This taxonomy provides a list of values that define the status of an item with regards to the registration lifecycle.

As an example, this taxonomy might contain values such as:

- Draft
- Registration Validation

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- Validated Registration

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Implementation

8.2 Implementation Status

This taxonomy provides a list of values that define the progress in the lifecycle of an implementation. The taxonomy focus mainly on the statuses that are close to an implementation being available.

As an example, this taxonomy might contain values such as:

- Under development
- Ready for consumption
- Terminated

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

8.3 Implementation Maturity

This taxonomy provides a list of values that define the maturity of an implementation.

As an example, this taxonomy might contain values such as:

- Prototype
- Operational
- Test

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

8.4 Version Category

This taxonomy provides a list of values that enable to distinguish the purpose of one version with regards to the others.

As an example, this taxonomy might contain values such as:

- Current and Supported

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- Obsolete and not supported
- Obsolete but supported
- Upcoming not supported

This taxonomy is applicable to the following entities:

- Every Versioned Entity (this includes most of the entities with a few exceptions e.g. Organization)

8.5 ATM Data Category

This taxonomy provides a list of values that define types of information in ATM. It corresponds to subject fields in AIRM.

As an example, this taxonomy might contain values such as:

- Flight
- Meteorology
- etc

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

This is an externally defined taxonomy to be imported from the AIRM.

8.6 ATM Activity Category

This taxonomy provides a list of values that define operational ATM activities.

As an example, this taxonomy might contain values such as:

- Conflict Management
- Trajectory Management

This taxonomy is applicable to the following entities:

- Service Implementation
- Service Definition
- Application Software

This is an externally defined taxonomy to be imported from the EATMA.

8.7 ATM Flight Phase

This taxonomy provides a list of values that define the different phases of a flight.

As an example, this taxonomy might contain values such as:

- Departure
- Arrival
- etc

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

This is an externally defined taxonomy to be imported from the EATMA.

8.8 ATM Stakeholder

This taxonomy provides a list of values that define the different types of ATM stakeholders.

As an example, this taxonomy might contain values such as:

- Airspace User
- ANSP

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

This is an externally defined taxonomy to be imported from the EATMA.

8.9 Geographic Scope

This taxonomy provides a list of values that define a geospatial area.

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

The following sub-categories have been identified.

- World Region (e.g. Europe, Africa,..)

8.10 Charging Options

This taxonomy provides a list of values that define the charging options possible.

As an example, this taxonomy might contain values such as:

- Free
- Free trial
- One time fee
- Subscription fee
- Pay per use

This taxonomy is applicable to the following entities:

- Service Implementation
- Application Software

8.11 Service Contractual Conditions Category

This taxonomy provides a list of values that define the different type of information related to the contractual conditions associated to the provision/consumption of a service.

As an example, this taxonomy might contain values such as:

- Incident Management
- Charging
- Use Restrictions
- Penalties

This taxonomy is applicable to the following entities:

- Service Implementation

8.12 Service Behaviour Category

This taxonomy provides a list of values that define

As an example, this taxonomy might contain values such as:

- Value

This taxonomy is applicable to the following entities:

- Entity

The following sub-categories have been identified.

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8.13 Data Exchange Standard Category

This taxonomy provides a list of values that define the different types of information types that can define a data standard.

As an example, this taxonomy might contain values such as:

- Logical Specification
- Physical Specification

This taxonomy is applicable to the following entities:

- Data Standard

8.14 Document Processing Category

This taxonomy provides a list of values that define the intended types of processing for document.

As an example, this taxonomy might contain values such as:

- Human Readable
- Machine Readable

This taxonomy is applicable to the following entities:

- Service Description Document

8.15 Compliance Assessment Status

This taxonomy provides a list of values that define the different types of compliance assessment.

As an example, this taxonomy might contain values such as:

- Self-Assessment
- Formal Assessment

This taxonomy is applicable to the following entities:

- Service Implementation

8.16 Service Type Taxonomy

This taxonomy provides a list of values that define the different types of information services.

As an example, this taxonomy might contain values such as:

- Information Processing
- Information Provisioning

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This taxonomy is applicable to the following entities:

- Service Implementation
- Service Definition

8.17 Message Exchange Pattern Taxonomy

This taxonomy provides a list of values that define the different types of compliance assessment.

As an example, this taxonomy might contain values such as:

- Publish-Subscribe
- Request-Reply

This taxonomy is applicable to the following entities:

- Service Implementation
- Infrastructure Binding