SWIM-TI Yellow Profile Technical Specification 2.1

Document information	
Project Title	Interface specifications and Services Technical requirements
Project Number	14.01.04
Project Manager	SELEX
Deliverable Name	SWIM-TI Yellow Profile Technical Specification 2.1
Deliverable ID	D41-005
Edition	00.02.00
Template Version	03.00.00
Task contributors	
SELEX, THALES, INDRA, FREQUENTIS, AIRBUS, HONEYWELL, EUROCONTROL	

Please complete the advanced properties of the document

Abstract

The purpose of this document is to specify the SWIM-TI Technical Specification 2.1 including functional, non-functional and interfaces requirements. This specification version updates, extends and improves the SWIM-TI Technical Specification 2.0 (14.01.04.D40) and SWIM-TI Step 1 IRS specification (14.01.04.D04) according to bottom-up (driven by internal to WP14 inputs) and top-down (driven by external to WP14 inputs) activities which have been carried on by 14.01.04 and 14.01.03 in the Iteration 2.1 timeframe.

Authoring & Approval

Prepared By - *Authors of the document.*		
Name & Company	Position & Title	Date
[redacted] SELEX	[redacted]	17/12/2013
[redacted] THALES		07/10/2013
[redacted] INDRA		07/10/2013
[redacted] THALES		07/10/2013
[redacted] FREQUENTIS		07/10/2013
[redacted] SELEX		07/10/2013
[redacted] EUROCONTROL		17/12/2013

Reviewed By - *Reviewers internal to the project.*		
Name & Company	Position & Title	Date
[redacted] INDRA	[redacted]	17/12/2013
[redacted] FREQUENTIS		17/12/2013
[redacted] THALES		17/12/2013

Reviewed By - *Other SESAR projects, Airspace Users, staff association, military, Industrial Support, other organisations.*		
Name & Company	Position & Title	Date
[redacted] THALES	[redacted]	18/07/2013
[redacted] INDRA		18/07/2013
[redacted] THALES		18/07/2013
[redacted] NATMIG		18/07/2013
[redacted] NATMIG		18/07/2013
[redacted] THALES		18/07/2013
[redacted] INDRA		18/07/2013
[redacted] THALES		18/07/2013
[redacted] ENAV		17/12/2013
[redacted] NORACON		17/12/2013

Approved for submission to the SJU By - *Representatives of the company involved in the project.*		
Name & Company	Position & Title	Date
[redacted] SELEX	[redacted]	07/02/2014
[redacted] EUROCONTROL		17/12/2013
[redacted] INDRA		07/02/2014
[redacted] FREQUENTIS		07/02/2014
[redacted] THALES		07/02/2014

Rejected By - *Representatives of the company involved in the project.*		
Name & Company	Position & Title	Date

Rational for rejection
None.

Document History

Edition	Date	Status	Author	Justification
00.00.01	11/03/2013	Draft	[redacted]	New Document including D40 content.
00.00.02	07/05/2013	Draft	[redacted]	A15 paper integration (previous appendix D of D40). The following sections have been updated: §1.4, §1.5, §2.6.1.3, §3.2.1, §3.6, §§2.6.1.4, §3.2.3, §3.2.4, §3.2.8, §3.3.1, §3.4, §3.6, Removed A15 appendix. Cleaned appendix including Step 1 "Deleted" requirements. Removed previous version of Use Case UML model adding the link to the current working version (refer Appendix B).
00.00.03	27/05/2013	Draft	[redacted]	General updates to the structure and appendixes. Added pending SJU comment to d40. Added interface requirements guidelines.
00.00.04	03/06/2013	Draft	[redacted]	Integration of requirements from BU-02 activity (sections §3.1.8 and §3.1.9). Implementation of pending SJU comment concerning PENS requirements (sections §3.1.8 and §3.1.9)
00.00.05	06/06/2013	Revised Draft	[redacted]	Added initial A/G Interfaces descriptions and requirements in §3.2.9.
00.00.06	11/06/2013	Revised Draft	[redacted]	Update sections SEC, PKI and BCA FBs according to INDRA and SELEX comments, to SEC FB Description document and to Iteration 2.1 Use Cases
00.00.07	13/06/2013	Revised Draft	[redacted]	Update MSG FB sections according to THALES and SELEX comments, to MSG FB Description document and to Iteration 2.1 Use Cases
00.00.08	17/06/2013	Revised Draft	[redacted]	Introduced new requirements covering Yellow Profile. Updated §1 and §2 according to Iteration 2.1. Updated Enablers. Update all the requirements

				replacing the old names of the profiles with the new one (Yellow, Blue and Purple) in the REQ Trace tables,
00.00.09	17/06/2013	Revised Draft	[redacted]	Use Cases update. TS structure update according to SPD-TS mapping Final review before delivery.
00.00.10	15/07/2013	Revised Draft	[redacted]	Requirements template checking and updates. Updated duplicated requirements identifiers for MSG interface requirements. Modified FBs sections according to SPD-TS mapping documented in Table 2-2. Added comments from review cycle and actions A11 and A13 (MSG).
00.00.11	30/07/2013	Revised Draft	[redacted]	(SELEX) Implemented initial set of comments from IS. (SELEX) Implemented initial set of comments from 14.02.09. (SELEX) Updated References. (SELEX-THALES) Updated SO Interfaces (§3.8.9) (SELEX-INDRA) Updated MSG interface requirements (§3.2.9)
00.00.12	07/10/2013	Revised Draft	[redacted]	(SELEX) Revised §1 and §2. (SELEX) Implemented initial set of comments from 14.02.02 (§1, §2 and §3.3). (SELEX) Implemented initial set of comments from THALES (§3.1). (SELEX) Implemented comments from B.4.3 (§1, §2 and §3.2) (SELEX) Implemented comments concerning Messaging FB functional requirements (§3.2.1) and §3.2.8. (THALES) Implemented comments concerning §3.1 and §3.2.2 to §3.2.7. (INDRA) Implemented comments concerning §3.3. (HONEYWELL) Updated requirements allocated to Purple Profile (HONEYWELL) Updated §3.2.9.

				(HONEYWELL) Updated Enablers table (Table 1-1) providing additional enablers related to A/G SWIM.
00.00.13	09/10/2013	Revised Draft	[redacted]	
00.00.14	26/11/2013	Revised Draft	[redacted]	Added Overall Chapter (§3.1)
00.00.15	12/12/2013	Revised Draft	[redacted]	Restructured to accommodate Yellow Profile. New specifications and updated specifications in Overall, Messaging and Security Chapters. Reference REQ Trace for all specifications that are shared with other Profiles in Overall, Messaging and Security Chapters. Selection of specifications that are applicable to the Yellow Profile. Candidate final version ready for approvals.
00.01.00	18/12/2013	Final Version	[redacted]	Final version ready for approvals and handover.
00.02.00	01/02/2014	Final Version	[redacted]	Implemented SJU and IS Assessment.

Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

Table of Contents

List of tables

List of figures

Executive summary

The purpose of this deliverable is to provide the second Step 2 version of the SWIM-TI technical specification for the SWIM Yellow Profile. SWIM-TI TS 2.0 requirements (14.01.04.D40 [23]) have been analyzed and improved performing a gap analysis against them and the SWIM-TI Step 2 Iteration 2.1 definition as planned and agreed in P14.01.03 and P14.01.04.

1 Introduction

This document represents the TS (Technical specification) covering functional, non-functional and interface requirements identified for SWIM Technical Infrastructure 2.1 and applicable for the SWIM Yellow Profile. This specification is based on the SWIM-TI Functional decomposition provided SWIM-TI TAD 2.1 [24]: each SWIM-TI Functional Block has been analyzed, its applicability to the Yellow Profile has been analyzed and for all concerning Functional Blocks and Functional Block functions functional, non-functional, applicable standards and interface requirements have been specified.

For what concerns the evolution of SWIM-TI TS 2.0 [23] to this TS, the areas of improvements are the following:

- Applicable standards: a well-defined set of applicable standards have been identified and concerning requirements have been specified.
- Interfacing layers including Service, Internal and Network layers: precise and unambiguous interface requirements have been specified.
- SWIM-TI Messaging scope and objective have been detailed and improved (in coordination with 14.01.03) and applicable requirements for the Yellow Profile have been specified.
- SWIM-TI Security scope and objective have been detailed and improved (in coordination with 14.01.03) and applicable requirements for the Yellow Profile have been specified.
- Full alignment and coherence between SWIM-TI TAD, SWIM-TSs and SWIM Profiles.

It should be noted that Yellow Profile SPA (SWIM Profile Assertion) is recovered quasi entirely from the intermediate release of 14.01.03.D34 [25].

1.1 Purpose of the document

This specification provides functional, non-functional, applicable standards and interface requirements applicable to the SWIM-TI Yellow Profile 2.1.

1.2 Intended readership

The intended audience of this document is:

- SJU/IS in order to manage the SWIM Technical Infrastructure TS,
- SWP14.2 projects in order to review this TS and to implement and verify the requirements;
- B.4.3 in order to review this TS according to its relationship with architectural aspects;
- 08.03.10 in order to review this TS according to its relationship with service instances provisioning and consumption;
- Any other SESAR projects that are interested in the TS of SWIM Technical Infrastructure Step 2 Iteration 2.1, especially Federating System Projects.

1.3 Inputs from other projects

This document is based on the following inputs:

- SWIM-TI TAD 2.1, 14.01.03.D33 [24]

- ISRM 1.0.
- 14.02.09.D11 SWIM interoperability guidelines.
- 14.02.09.D13 SWIM Technical Infrastructure V1.1.0 Verification Report.
- 14.02.09 Initial Feedback from V2.0.0 Verification Activities

1.4 Structure of the document

This document is organized as follows:

Chapter 1: Purpose and scope, requirements guidelines; SWIM Technical Infrastructure purpose and high level overview.

Chapter 2: General SWIM Technical Infrastructure description including context description, applicable SWIM-TI functional blocks analysis.

Chapter 3: SWIM-TI Yellow Profile functional, non-functional, applicable standards and interface requirements.

Chapter 4: Assumptions.

Chapter 5: Referenced documents;

Appendix A: SWIM-TI Technical Use Cases

Appendix B: Deleted SWIM-TI Step 2 WP14 Iteration 2.0 Requirements

1.5 Requirements Definitions – General Guidance

14.01.04 requirements guidelines include programme level guidelines [2] which have been extended with project level guidelines [9] concerning requirement identifiers coding schema, requirements writing rules, project specific requirements attributes and links, etc.

To facilitate the reading of this specification, in this section some guidelines concerning the management of requirements applicable to more SWIM Profiles are extracted from project level guidelines. In the figure below a simplified view of how this kind of requirements are reported in the 14.01.04 Technical Specifications is provided.

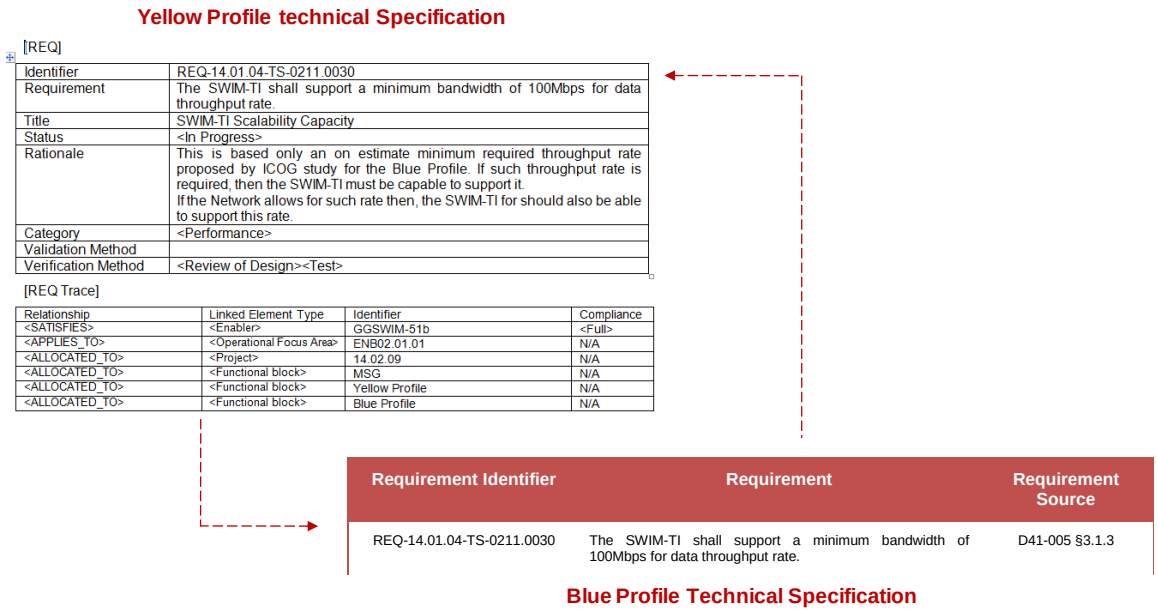


Figure 1-1: P14.01.04 TS and Requirements shared by several SWIM Profiles

In this example we have a requirement (REQ-14.01.04-TS-0211.0030) that it is considered applicable to two profiles (Yellow and Blue). Taking into account that:

- when using the programme level requirement template (table on left side in the figure) it is not possible to duplicate requirement identifiers (i.e. to have the same table) in two/more TSs,
- it is not reasonable to duplicate requirements identifiers while the objective of the two/more requirements will be exactly the same (SWIM-TI solution may implement more profiles),

14.01.04 is adopting a cross-reference mechanisms (table on right side in the figure):

- When a requirement is applicable to more profiles it is first agreed which TS will include the requirement in the form of the programme level template. This TS will be the "Requirement Source" (D41-005 in the figure)
- The requirement included in that TS shall include in the REQ Trace table, ALL applicable profiles (Yellow and Blue in the figure)
- In another TS that is expected to include the same requirements a cross reference table is provided, which shall include as minimum requirement identifier, requirement text and requirement source (in the figure the Blue Profile specification includes/refers to a requirement which is in the Yellow Profile specification).

This mechanism is also adopted when a per profile specification includes a link with PKI and REG TSs.

1.6 Functional block Purpose

SWIM-TI is the enabler for the SWIM concept realization: *to increase the common situational awareness improving the ability to deliver the right information to the right people at the right time*. In other words, as described in [7], SWIM-TI contributes to the services' solution aspects providing means supporting an effective and secure ATM-specific services provisioning and consumption among SWIM Enabled ATM systems.

SWIM-TI is built by specific technical elements identified and implemented in accordance with the needs of each ATM system and service. These technical elements consist of functionalities or

functional blocks (FB) which are specified providing requirements, proper architectural items, interfacing layers and standard technologies.

The purpose of the SWIM Yellow Profile, as profiling of the SWIM-TI as introduced above, is detailed in §2.4.

1.7 Functional block Overview

1.8 Glossary of terms

Please consider that in this document the term SWIM-TI Functional Block is used meaning SWIM-TI Function (refer to ADD Step 2/3 §3.4 [7]) and SWIM-TI Common Functional Block is used meaning SWIM-TI Common Function.

Furthermore, according to the SJU Guideline and in line with 14.01.04.D04 [13], the SWIM Capability term is replaced by SWIM-TI Functional Block. However, when used in such requirements it means SWIM-TI Functional Block.

The first table hereafter, provides a briefly overview of the terminology changes using terminologies adopted in WP14 Step 1, B.4.3 ADD Step 2 and WP14 Step 2.

WP14 Step 1	B.4.3 ADD Step 2	WP14 Step 2	Description
SWIM-TI	SWIM-TI	SWIM-TI	SWIM Technical infrastructure composed by distributed SWIM-TI Nodes and SWIM-TI Common components.
SWIM-TI Node	SWIM-TI Node	SWIM-TI Node	SWIM-TI Node provides a collection of SWIM-TI Functional Blocks, compliant with one or more SWIM profiles, allowing a given ATM application to use the SWIM-TI
SWIM-TI Common Component	SWIM-TI Common Component	SWIM-TI Common Component	SWIM-TI Common Component provides a collection of SWIM-TI Common Functional Blocks. A Common Component is an internal part of the SWIM Technical Infrastructure and it does not link directly with an ATM system: it interfaces only with another Common Component or SWIM Node.
Capability	SWIM-TI Function	SWIM-TI Functional Block	SWIM-TI functional view is composed by a number of SWIM-TI Functional Blocks. Each Functional Block represents a logical grouping of functions
Shared Capability	SWIM-TI Common Function	SWIM-TI Common Functional Block	A Common Functional Block is a logical grouping of functions used by other functional blocks (common or not) in order to ensure the correct behaviour of the SWIM-TI and the interoperability of the SWIM Nodes. Common Functional Blocks

			are used by several SWIM Nodes in order to fulfil their tasks and a given common FB can be used by all or by a sub-group of SWIM Nodes. Furthermore a common FB, according to its specificities, can be operated by a regional or sub-regional SWIM Authority.
No equivalent	No equivalent	Capability	Capabilities or functions represent the functional breakdown of a given SWIM-TI Functional Block. Capability and Function mean the same thing.
No equivalent	No equivalent	Function	Capabilities or functions represent the functional breakdown of a given SWIM-TI Functional Block. Capability and Function mean the same thing.

Term	Definition
Alarm	An indication of an error or an abnormal and/or undesirable condition for a resource. An example of an alarm would be for a "connection down" in a data communications channel, or a non-booting processor in a hardware platform. Alarms originate with the hardware, software, and data communications infrastructure, and the infrastructure provides an indication to the Supervision when an alarm is raised or cleared. The Supervision notifies the local owner or authorized requester when an alarm is raised or cleared for a monitored resource.
Archive	Information storage that is used for by the automation for long-term retention of information produced and/or used at the local SWIM Node. An archive may be offline with respect to the SWIM Node, meaning that it is not directly accessible to processes and services running on the SWIM Node; or it may be online with respect to the SWIM Node, meaning that the archive is directly accessible to processes and services running on the SWIM Node. Information that is logged by the SWIM Supervision is retained online for a configurable time period, after which it is archived and is then no longer guaranteed to be available in the same manner as information that has not reached its retention time limit. Each SWIM Node will have local processes and procedures for storing, maintaining, and accessing archived information. Archived information will be available to the reporting capability; however, the response time for accessing archived information will vary according to the storage approach used by the node.
ATM Service or SWIM ATM Service	A service representing the exchange of well defined ATM information. These services are defined by WP8 and are part of the ISRM.
Attribute Based Access Control (ABAC)	In attribute-based access control (ABAC), access is based on attributes of the user. The user has to prove these attributes to the access control engine. An attribute-based access control policy specifies which attributes need to be satisfied in order to grant access to an object.
Authorized requester	A human user or automated process, at the local SWIM Node or at a remote SWIM Node, that has been authenticated and is authorized per security requirements to make a service request.

Term	Definition
Bridge Certificate Authority (BCA)	The Bridge Certification Authority (BCA) architecture addresses the shortcomings of the two basic PKI architectures, and to link PKIs that implement different architectures. The BCA does not issue certificates directly to users. The BCA is not intended to be used as a trust point by the users of the PKI, unlike the "root" CA in a hierarchy. The BCA establishes peer-to-peer trust relationships with the different user communities, which allows the users to keep their natural trust points. These relationships are combined to form a "bridge of trust" enabling users from the different user communities to interact with each other through the BCA with a specified level of trust.
Bridge Certificate Authority Functional Block or SWIM-TI Bridge Certificate Authority FB	BCA is a common FB aiming at supporting the establishment of trust path among security domains.
Certificate Service Provider (CSP)	It is anticipated that security of the European SWIM-TI will not be handled by a single certification authority nor even by a single hierarchy of certification authorities. The main reason is that a few organizations (e.g. CFMU and some Airlines) have already deployed a PKI with an associated third party CA (or Certificate Service Provider (CSP)). The objective is not to replace the existing CAs by a single new one but rather to build a SWIM-TI capable of federating existing CAs and the SWIM-TI dedicated CA
Channel Protection	Channel Protection or transport level security, provides point-to-point protection of the communication. The protection will not go beyond intermediaries. This may be acceptable or not depending on the context. The Transport Layer Security protocol (TLS) is a well-known and widely used protocol to provide transport level security. TLS encrypts the data using asymmetric cryptography for key exchange, symmetric encryption for confidentiality and Message Authentication Codes for message integrity.
Confidentiality Ensuring	Confidentiality Ensuring aims at providing the ability to ensure "non-disclosure" of information. This service relies on the policy enforcement features and to the cryptographic mechanisms provided by the Cryptography security enabler to ensure information confidentiality at message level. Note: These services breakdown is described in §2 and it has been defined according to P14.01.04 SWIM-TI Use Case UML model [11]
Data Validation Functional Block or SWIM-TI Data Validation FB	Data validation allows checking for conformance to message/data type descriptions as defined by SWP8.1, SWP8.3 and P14.01.04. The conformance conditions are expressed in form of well-defined policy assertions assigned to the SWIM service definition.
Digital Signature (algorithm)	Digital Signature is a mathematical scheme for demonstrating the authenticity of a digital message or document. A valid digital signature gives a recipient reason to believe that a known sender created the message, and that it was not altered in transit. Unlike a Message Authentication Code, a Digital Signature also provides support for non-repudiation.
Enabling Service	A service provided by the SWIM-TI.
European Network of Excellence in	ECRYPT (European Network of Excellence for Cryptology) is a 4-year European research initiative launched on 1 February 2004. The stated

Term	Definition
Cryptology (ECRYPT)	objective is to, "intensify the collaboration of European researchers in information security, and more in particular in cryptology and digital watermarking.
Failure Transparency	Failure transparency masks from an object the failure and possible recovery of other objects (or itself) to enable fault tolerance. When this transparency is provided, the designer can work in an idealized world in which the corresponding class of failures does not occur.
Functional Status	Indicates the ability of the SWIM Node or an element of the SWIM Node to provide the services.
High Availability Functional Block or SWIM-TI High Availability FB	High availability FB permits the technical infrastructure (and the ATM services it enables) to maintain an appropriate level of operation.
Information Origin Authentication	SWIM-TI service to authenticate the originator of a message by several techniques at message level and transport level.
Interface Control Document (ICD)	The governing SWIM-SESAR interface specification that provides compliance information and message constructs to be used for interaction with the Supervision capability, including SWIM Services, both within and across SWIM Nodes.
IOP Status	Indicates the ability of the SWIM Node to provide shared object services.
Message Protection	Message Protection or message level security, provides end-to-end protection of the communication. The protection remains intact across intermediaries. This may be needed in a context where transport level security can not satisfy the needs. XML Signature and XML Encryption are 2 examples of well-known and widely used protocols to provide message level security when dealing with an XML payload. XML Signature provides for instance support for authenticity, integrity and for non-repudiation. XML Encryption provide for instance support for confidentiality.
Messaging FB or SWIM-TI Messaging FB	Messaging Functional Block provides a decoupled, interoperable and effective communications between information producer and the information consumers. This supports different message exchange patterns (e.g. publish-subscribe, request-response, push, etc.), different subscription styles (e.g. durable, non-durable) and different set of QoS (e.g. best-effort and reliable delivery).
Pan-European Network Service (PENS)	A joint EUROCONTROL-ANSPs led initiative to provide a common IP based network service across the European region covering voice and data communication and providing efficient support to existing services and new requirements that are emerging from future Air Traffic Management (ATM) concepts.
Policy Enforcement Functional Block or SWIM-TI Policy Enforcement FB	Policy Enforcement FB aims at providing functionalities to enforce several kinds of policies including security policies (authorization, authentication, audit, etc.), messaging related policies, supervision policies, etc.
Public Key	Public Key Cryptography refers to a cryptographic techniques in which one

Term	Definition
Cryptography	key is private and a corresponding key one is public. Information are is encrypted using the public key and can only be decrypted by the corresponding private key or vice-versa, information is encrypted using the private key and can only be decrypted by the corresponding public key.. Public Key Cryptography can also be used for Digital Signatures; in this case the private key is used for signing, and the corresponding public key for verifying.
Public Key Infrastructure	A Public Key Infrastructure (PKI) is a system, which may include hardware, software, contributors (ex. people), policies and procedures needed to create, manage, distribute, use, store and revoke digital certificates.
Public Key Infrastructure Functional Block or SWIM-TI Public Key Infrastructure FB	Common PKI aiming at providing functions to manage certificates and cryptographic keys. This FB is common to SWIM nodes belonging to a given stakeholder. In other words each stakeholder has its own PKI.
Recording Functional Block or SWIM-TI Recording FB	Recording FB includes the ability to collect, store and to retrieve on demand of information related to communication being performed via the SWIM Interfaces and supervision actions and events.
Registry Functional Block or SWIM-TI Registry FB	Registry FB includes two main groups of functions: -Information Management enabling the management several kinds of ATM-specific service meta-data allowing to discover, to subscribe and to publish/update these information. -Policy Management enabling the definition, validation and distribution of several kinds of policies including security. It covers policy administration (including creation, maintenance, change and deletion) and policy distribution and transformation and policy auditing.
Replication Transparency	Replication transparency masks the use of a group of mutually behaviourally compatible objects to support an interface. Replication is often used to enhance performance and availability.
SAML Token	Security Assertion Markup Language (Token)
Shared Object Functional Block or SWIM-TI Shared Object FB	Shared Object FB is a special category that holds a pattern used to share data across multiple SWIM Nodes according to specific roles and rules.
Security Functional Block or SWIM-TI Security FB	Security Functional Block provides confidentiality, integrity, access control, accountability and non-repudiation functionalities, allowing data exchanged through the SWIM-TI to be protected
(Security) Policy	An agreement upon which actors (e.g. Systems) can collaborate. A typical example of this is Authorization Policy and Audit Policy.
(Security) Policy Life Cycle Management	The Policies lifecycle management (refer to 14.01.04.D40 §2 P14.01.04 SWIM-TI Use Case UML model [11], in particular to "Policy Management and Enforcement Use Cases" use case package) is a key aspects enabling the

Term	Definition
	appropriate confidentiality policy enforcement
Security Token	Security tokens are used to prove one's identity electronically. The token is used in addition to or in place of a password to prove that a given actor is who they claim to be. The token acts like an electronic key to access something. Besides the information needed to authenticate an identity, a token can provide additional information related to an identity that can be used for instance to support the authorization. Security tokens imply trust of a third party that issues the security tokens.
Service	When used without further qualification, Service indicates either a SWIM Service or a SWIM Enabling Service that is to be managed by SWIM Supervision at the local SWIM Node.
Service Agent SOA Design Pattern	Service agents can be designed to automatically respond to predefined conditions without invocation via a published contract. Refer to SOA Patterns http://www.soapatterns.org/service_agent.php
Service Virtualisation (Through Service Agent SOA design pattern)	Service Virtualization helps insulate service infrastructure details such as service endpoint location, service inter-connectivity, policy enforcement, service versioning and dynamic service management information from service consumers Refer to: http://www.soapatterns.org/service_virtualization.php
Supervision Functional Block or SWIM-TI Supervision FB	Monitoring and Control FB includes control, fault management and performance monitoring at SWIM Node level (local supervision).
SWIM Enabled System/Application	A SWIM Enabled System/Application is a system/application exchanging information with other ATM actors according to the SWIM ATM Services defined by WP8 and the appropriate SWIM-TI defined by WP14.
SWIM Message Exchange Pattern (MEP)	SWIM Exchange Pattern is a definition to provide data exchanges of a SWIM profile. The message exchange patterns can be defined in terms of a set of technical attributes including interaction pattern, security, quality of service, network infrastructure, middleware functional needs and mandated standards.
SWIM Node or SWIM-TI Node	SWIM-TI Node provides a collection of SWIM-TI Functional Blocks, compliant with one or more SWIM profiles, allowing a given ATM application to use the SWIM-TI
SWIM Node Application	A SWIM Node Application represents an application or a software system that supports a particular business function and that can be managed as an independent unit[1]. A SWIM Node Application can be local to a SWIM Node Computer or distributed over multiple Servers. A SWIM Node Application can be composed of other application elements (processes, software components) and other SWIM Node Applications (sub-applications).

[1] See definition of CIM_Application System from Distributed Management Task Force (DMTF) Common Information Model (CIM)

Term	Definition
SWIM Node Computer	SWIM Node Computer is a special collection of SWIM TI managed entities that provides computing capabilities (such as processor, memory and file systems) for running SWIM TI applications and software components. A SWIM Node Computer is uniquely named and independently managed in a SWM Node.
SWIM Profile Assertion (SPA)	Declaration of the existence of a SWIM Profile combined with precisions on scope and motivation and with design considerations.
SWIM Risk Assessment	A SWIM Security Risk Assessment is an integrated business process that incorporates all of the Risk Management processes, activities, methodologies and policies adopted and carried out in an organization. The Risk Management strategy sets the parameters for the entire Risk Management and is usually released by the executive management of an organization.
SWIM Service	A service that is managed by the SWIM Supervision capability at a local SWIM Node. SWIM Supervision is responsible for the data, process control, event-reporting, and statistics for these services.
SWIM Supervision Service	A service whose functionality is part of the SWIM Supervision capability. SWIM Supervision Services are a subset of SWIM Services.
SWIM Technical Infrastructure (SWIM-TI)	The SWIM Technical Infrastructure (SWIM-TI) contributes to the services' solution, aspects providing means supporting effective and secure ATM-specific service provision and consumption among SWIM-enabled ATM systems.
Symmetric Key Cryptography (algorithms)	A Symmetric Key algorithm uses the same cryptographic key (shared secret key) for both encryption of plaintext and decryption of cipher text.
System Instance	A System Instance (SI) is a stakeholder system in the SoS which provides and consumes data in an ATC context eg. CFMU, Airports
Technical Status	Indicates whether the SWIM Node or an element of the SWIM Node is working.
XML Encryption	XML Encryption is a specification (by W3C recommendation) that defines how to encrypt the contents of an XML element. *Note: W3C (World Wide Web Consortium) is the main standards organization for the world wide web.*
XML Signature	XML Signature is an XML syntax for digital signatures.
X.509 certificates	In cryptography, X.509 is an ITU-T standard for a public key infrastructure (PKI) and Privilege Management Infrastructure (PMI). X.509 specifies, amongst other things, standard formats for public key certificates, certificate revocation lists, attribute certificates, and a certification path validation algorithm.

1.9 Acronyms and Terminology

Term	Definition
A/G	Air-Ground
ABAC	Attribute Based Access Control
A/C	Aircraft
ACC	Air Traffic Control Centre
ADD	Architecture Description Document
AGDLGMS	Air-Ground Data Link Ground Management System
AIM	Aeronautical Information Management
AIRM	Aeronautical Information Reference Model
AIXM	Aeronautical Information eXchange Model
AMHS	Aeronautical Message Handling System
AOC	Airline Operations Centre
ASTERIX	All Purpose STructured Eurocontrol SuRveillance Information eXchange
ATC	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATN/IPS	ATN using Internet Protocol Suite technologies
B2B	Business to Business
BAFO	Best And Final Offer
BCA	Bridge Certification Authority
BCA FB	Bridge Certificate Authority Functional Block or SWIM-TI Bridge Certificate Authority FB
BRR	Business Requirements Report
CA	Certification Authority
CBA	Cost Benefit Analysis

Term	Definition
CC	Capability Configuration
CDM	Collaborative Decision Making
CONOPS	Concept of Operations
CORBA	Common Object Request Broker Architecture
COTS	Commercial Of The Shelf
CSP	Certificate Service ¨Provider
DDS	Data Distribution Service
DOD	Detailed Operational Description
DOW	Description Of Work
DV or DV FB	Data Validation Functional Block or SWIM-TI Data Validation FB
EAD	European Aeronautical Database
E-ATMS	European Air Traffic Management System
EC	European Commission
EN	Enabler
ESB	Enterprise Service Bus
FAA	Federal Aviation Administration
FB	Functional Block
FHA	Fault Hazard Analysis
FMS	Flight Management System
FO	Flight Object
FR	Functional Requirement
G/G	Ground/Ground
HA or HA FB	High Availability Functional Block or SWIM-TI High Availability FB
HTTPS	HyperText Transfer Protocol Secure
IATA	International Air Transport Association
ICD	Interface Control Document
ICOG	Interoperability Consultancy Group

Term	Definition
IM	Information Management
INTEROP	Interoperability Requirements
IPR	Intellectual Property Rights
IRS	Interface Requirement Specification
IS	Industrial Support
ISRM	Information Service Reference Model
IT	Information Technology
LAN	Local Area Network
MSG or MSG FB	SWIM-TI Messaging FB or briefly Messaging FB
MET	Meteo
MEX	Metadata EXchange
NAF	NATO Architecture Framework
NATO	North Atlantic Treaty Organization
NFR	Non-Functional Requirement
NM	Network Management (CFMU)
NOP	Network OPerations or Network Operations Portal
NOTAM	NOTice To AirMen
NOV	NAF Operational View
NSOV	NAF Service-Oriented View
NSV	NAF System View
NTV	NAF Technical View
OASIS	Organization for the Advancement of Structured Information Standards
OFA	Operational Focus Area
OS	Operating System
OSED	Operational Service and Environment Definition
PDR	Preliminary Design Review
PENS	Pan-European Network Service

Term	Definition
PEP or PEP FB	Policy Enforcement Functional Block or SWIM-TI Policy Enforcement FB
PIR	Project Initiation Report
PKI	Public Key Infrastructure
PKI FB	Public Key Infrastructure Functional Block or SWIM-TI Public Key Infrastructure FB
PSM	Platform Specific Model
QoS	Quality of Service
REC or REC FB	Recording Functional Block or SWIM-TI Recording FB
REG or REG FB	Registry Functional Block or SWIM-TI Registry FB
RBAC	Role Based Access Control
RFC	Request For Comments
RSA	Rivest Shamir Adleman
RST	Request Security Token
RSTR	Request Security Token Response
RTD	Research and Technological Development
SAML	Security Assertion Markup Language
SAR	System Acceptance Review
SEC FB or SEC	Security Functional Block or SWIM-TI Security Functional Block
SEMP	System Engineering Management Plan
SESAR	Single European Sky ATM Research Programme
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.
SI	System Instance
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency
SLA	Service Level Agreement
SO or SO FB	Shared Object Functional Block or SWIM-TI Shared Object FB

Term	Definition
SOA	Service Oriented Architecture
SOAP	Simple Object Access Protocol
SoS	System of Systems
SPA	SWIM Profile Assertion
SPR	Safety, Performance Requirements
SPV or SPV FB	Supervision Functional Block or SWIM-TI Supervision FB
SSDD	System/Segment Design Document
SSL	Secure Socket Layer
SSO	Single Sign-On
STS	Secure Token Service
SW	SoftWare
SWIM	System Wide Information Management
SWIM-TI	SWIM Technical Infrastructure
TAD	Technical Architecture Description
TLS	Transport Layer Security
TRR	Test Readiness Review
TS	Technical Specification
UDDI	Universal Description Discovery and Integration
UML	Unified Modeling Language™
WA	Work Activity (within a project)
WAN	Wide Area Network
WBS	Work Breakdown Structure
WP	Work Package
WS	Web Services
WSDL	Web Services Description Language
WSS	Web Services Security
XACML	eXtensible Access Control Markup Language

Term	Definition
YP	Yellow Profile

2 General Functional block Description

Even if the title of this chapter refers to a single FB, it concerns all the SWIM-TI functional, non-functional, standards and interface requirements applicable to the Yellow Profile. In both §2 and §3 the name of the chapters have not been updated in order to be compliant with SJU/IS Technical Specification (TS) template.

2.1 Context

A brief SWIM-TI overview is provided in §1.6 and §1.7. Please refer to SWIM-TI TAD 2.1[24] and §2.3, §2.4 and §2.5 sections below.

2.2 Functional block Modes and States

N/A.

2.3 Major Functional block Capabilities

In this section the SWIM-TI Functional Blocks described in the SWIM-TI TAD 2.1 are assessed as applicable to the Yellow Profile are provided.

FB Name	FB Code	Applicable SWIM Profiles	References
Messaging	**MSG**	Blue Profile **Yellow Profile** Purple Profile	**Requirements applicable to the Yellow Profile are provided in §3.2.**
Security	**SEC**	Blue Profile **Yellow Profile** Purple Profile	**Requirements applicable to the Yellow Profile are provided in §3.3.**
Data Validation	**DV**	Blue Profile **Yellow Profile** Purple Profile	**Requirements applicable to the Yellow Profile are provided in §3.6.**
Supervision	**SPV**	Blue Profile **Yellow Profile**	**Requirements applicable to the Yellow Profile are provided in §3.4.**
Recording	**REC**	Blue Profile **Yellow Profile**	**Requirements applicable to the Yellow Profile are provided in §3.7.**
High Availability	**HA**	Blue Profile **Yellow Profile**	**Requirements applicable to the Yellow Profile are provided in §3.5.**

Table 2-1: SWIM-TI Functional Blocks Applicable To Yellow Profile

FB Name	FB Code	Applicable SWIM Profiles	Reference
Registry	**REG**	Blue Profile **Yellow Profile** Purple Profile	**14.01.04.D41-004**
PKI	**PKI**	Blue Profile **Yellow Profile** Purple Profile	**14.01.04.D41-002**
Bridge	**BCA**	**Depending on constraints**	**14.01.04.D41-003**

FB Name	FB Code	Applicable SWIM Profiles	Reference
Certification Authority		**and limitation of the PKIs used.**	

Table 2-2: SWIM-TI Common Functional Blocks Applicable To Yellow Profile

2.4 SPA

2.4.1 Yellow Profile, REQ-14.01.03-TS-PA0T.0021

2.4.1.1 Scope

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:

- support for a wide variety of interactions in a flexible manner and that is affordable for the service consumer.
- the interaction must be able to run over Internet and must be sufficiently secured
- use of technology based on the Web Services stack of standards
- the technology must be supported out-of-the-box by the mainstream development frameworks as well as mainstream execution frameworks.
- keeping as many options open as possible re. deployment

The YP is explicitly not targeted at contexts that require/impose:

- real-time or near real-time uses
- extremely high availability
- severe constraints re. available resources

The YP favours consistency above availability in the context of Brewer's CAP theorem.

2.4.1.2 Rationale

The Step 1 Profiles B2B EAD and B2B NOP both already covered a significant number of aspects in the scope described above. Both Step 1 Profiles, were architected in an SOA vision. Yet, some aspects were not elaborated because there was no need in their specific business context.

For some aspects both Step 1 Profiles complement each other and cover some of the gaps in the other Step 1 Profile. For other aspects, specifications are absent.

The YP is the generalisation of the Step 1 Profiles B2B EAD and B2B NOP through merging of specifications, widening specifications and modernizing specifications.

2.4.1.3 Structure

2.4.1.3.1 Considerations

2.4.1.3.1.1 Interoperability

2.4.1.3.1.1.1 Overview

The technology interoperability for the YP is first of all based on the use of the Web Services stack of standards including bindings to lower layer protocols.

- An exhaustive implementation of the Web Services stack is problematic for a number of reasons: e.g. not all elements of the stack are broadly/equally supported, the standards are not always interpreted in a uniform manner and the exhaustive stack represents a significant amount of complexity that is not always needed or that may never be needed.

The security solutions are another cornerstone element of technology interoperability of the YP.

- Many aspects of the distributed security needs (confidentiality, integrity, authenticity, accountability and non-repudiation) are targeted to be dealt with using technology based on PKI. Not all security technology and sophistication is needed in all cases.

- Specific aspects of the distributed security needs (e.g. authenticity) can be dealt with in a federated and/or centralized manner and abstract the client from the PKI technology. Whereas this provides potential added value to the client (e.g. single sign on), it also puts a burden on the client that may not be worth the investment.

The SWIM-TI part of syntactic interoperability is based on a variety of formats.

- Specific formats are required for the OGC protocols.

- Not all stakeholders in the targeted scope of the YP will have a need for interoperability through all of the formats.

A structure that mandates widely adopted minimal subsets of standards that are broadly shared amongst the stakeholders of the targeted scope of the YP, combined with optional sets of the standards would allow to accommodate both generic requirements as well as more specific requirements.

2.4.1.3.1.1.2 Variations and combinations

The subset of Web Services technologies that is SOAP based has been conceived to provide a framework that can be extended in a quasi unlimited manner. The SOAP framework allows for a large number of variations and combinations.

Also an enumeration of applicable standards is not sufficient to promote and support interoperability:

- Some standards have two or more variants/versions that are current and valid (e.g. SOAP1.1 and SOAP1.2). Participants that are not aligned on variant or version to use, will not be able interoperate.

- Most standards have optional elements. Participants that are not aligned on the inclusion/exclusion of optional elements will not be able interoperate or will experience significant problems.

- There are standards with overlapping functionality (e.g. TLS and WS-SecureConversation). Participants that are not aligned on which standard to use in which context will not be able to interoperate or will experience significant problems.

- Many security controls that address security needs (e.g. integrity, confidentiality, authenticity) can be realized through different standards both within the scope of the SWIM-TI (e.g. TLS and WS-Security) as well as in combination with security controls outside the scope of the SWIM-TI (e.g. confidentiality provided at network level). Participants that are not aligned on the standards used for security controls and the related security needs will not be able to interoperate.

- Some protocols allow to be part of protocol stacks that are assembled in a different manner (e.g. HTTP over TLS over TCP and HTTP over TCP). Participants that are not aligned on the stacking of protocols will not be able to interoperate.

Moreover, the standards themselves suffer from some issues that impact interoperability:

- Some standards suffer from quality problems such as errors and ambiguities (e.g. SOAP 1.1, WSDL 1.1). Participants that are not aligned on the interpretation of standards will not be able to interoperate or will experience significant problems.

- Some standards are recent and considered of higher quality than older versions but do not get market adoption or significant use (e.g. WSDL 2.0). Communication between participants based on elements that are not supported by all participants will not be able to interoperate.

- Some specifications have not yet reached the official standard status. Despite not having reached an official standard status, such specifications may need to be applied by all participants in a communication to be able to interoperate.

The large number of allowed variations and combinations represents a high number of distinct configurations that do not interoperate or will experience significant interoperability problems even if they all use the same standards. Support for all possible distinct configurations would represent a very large, complex and costly footprint. Most probably there would be no COTS available that provides such support.

The YP makes a selection of these combination. The selection is performed on the base of following principles:

- Elimination:

  - Standards that do not provide functionality that is identified as needed and that do not provide functionality for which a need is anticipated, are eliminated

  - Standards that have been obsoleted by other standards and for which there is no more significant use, are eliminated.

  - Standards that do not provide unique added value, are eliminated.

- Optional:

  - Standards that are not supported/adopted/usable by mainstream middleware COTS (IBM, Microsoft, Oracle, Apache) are eliminated or allowed as an additional option besides a mandatory standard

- Standards that are not supported/adopted/usable by mainstream development frameworks (Java-based and .NET-based) are eliminated or allowed as an additional option besides a mandatory standard.

- Consumer friendliness:

In some cases a service consumer may want/need to reuse existing infrastructure and existing experience with some specific standards for which another equivalent and equally valid standard exists. Depending on the possible impact and difficulty for a consumer to adapt, in such case the service provider may be mandated to provide access to the service in multiple ways.

> The backbone of the SOAP framework is the SOAP protocol itself. There are 2 versions that are current, valid and standard: SOAP1.1 and SOAP1.2. Despite the presence of a number of improvements in SOAP1.2, SOAP1.1 is not deprecated.. The WSI organisation that issues recommendations on how to use various elements in the SOAP framework to promote interoperability does not give preference to one of both as it published the WSI Basic Profile 1.2 (for SOAP1.1) and WSI Basic Profile 2.0 (for SOAP1.2) at exactly the same moment: November 9, 2010

- Minimal security at the level of external service interfaces:

Any configuration of standards linked with a service interface must include a security control that provides a means to verify the integrity of the data that is communicated as well as a security control that allows authentication of either consumer, either provider or both.

- "One size does not fit all":

Distinct Use Cases within the YP can have some form of competing requirements. An example of such competing requirements consists of different ways of securing (confidentiality, integrity and authenticity), the exchange of multiple messages between consumer and provider (see http://en.wikipedia.org/wiki/WS-Security#Performance).

- A first solution: the exchange of all the messages can be performed through TLS which provide a form of shared security context and which will provide good performance. However the security controls do not have an end-to-end scope.

- A second solution: each message can be signed and encrypted using WS-Security: the security controls do have an end-to-end scope. However performance will suffer very significantly.

- A third solution: WS-Security and WS-SecureConversation are combined: the performance will be significantly better than in the second solution and the security controls do have an end-to-end scope. However the performance will not be as good as the first solution and there is a significant increase of complexity and interdependencies between distinct standards and versions.

When each of above represents the correct solution for a Use Case, a technical configuration for each of above could be included in the Yellow Profile.

- Variations in security:

The flexibility and extensibility provided by the SOAP framework allows distinct security mechanisms to be combined, allowing for very sophisticated and complex solutions. In order to be able to limit the number of security mechanisms, the complexity and footprint of the SWIM Profile, the specifications related to security needs and controls to provide the functionality, are structured along 3 main axes.

- The scope of the protection: transport level and network level. The Use Cases that can be satisfied with one type of scope cannot typically be satisfied with the other type of scope. For instance message level security is required to support non-repudiation, transport level security is required for performance. Message level security provides an end-to-end scope, transport level security a point-to-point protection.
- Local identity management versus federated identity management. Local identity management is very flexible and provides autonomy but fails to scale. Federated identity management scales very well but adds complexity.
- The type of credentials. The specifications explicitly mention the need for user/password authentication as well as X.509 certificate based authentication. To take advantage of a federated identity management, additionally a SAML Token is required.

The supported number of variations is kept to a minimum when the security mechanisms cover and support the variations of the 3 main structuring elements of security.

2.4.1.3.1.2 Reuse and size

Merging alone of two Step 1 Profiles that complement each other into a single profile combined with additional specifications will lead to a greater functional and non-functional footprint. This will increase the probability of reuse but may make the Profile too heavyweight to match the affordable dimension of the scope.

See also §2.4.1.3.1.1.2

2.4.1.3.1.3 Constraints, competing requirements and risks

There is a high probability that for some of the participants using the YP - intentionally covering a large scope -, distinct forms of regulation and/or certification will be imposed on the technical infrastructure.

Generalizing these regulations and/or certifications would at best create a significant amount of unnecessary requirements for many participants. In less favourable conditions, the requirements provided by regulations and/or certifications could be conflicting.

2.4.1.3.1.4 Modular structure

The considerations above provide indications that a number of variations of requirements will exist within the context of the YP having a significant shared common footprint of specifications with specific extensions that should not be imposed onto all implementations.

Also, some QoS criteria will not be uniformly shared.

2.4.1.3.1.5 Lifecycle of the SWIM Profile

The Web Services stack of standards is very mature.

- According to Gartner, IBM and Microsoft are satisfied with the status of the Web Services stack and they have finalized their contributions around 2009. No major gaps have been identified in the technology either. The probability of major changes or a high frequency of changes in future is thus very low.

- There is a ubiquitous support in development frameworks and execution frameworks for the common aspects of the Web Services stack of standards and there are no signs/announcements of major players quitting the technology or parts of the technology.

The PKI related technology is very mature. Little or no change is to be expected from this side.

The technology related to federation of security and policy management is less mature and there is a significant probability that changes are to be expected.

From a FR and NFR point of view, many specifications have been issued in a Bottom-Up manner and have not yet been confirmed by Top-Down specifications. There is a high probability that FR and/or NFR of the YP will change.

2.4.1.3.1.6 Design rules

There is no conflict of the scope of the YP with the design rules.

2.4.1.3.1.7 Design criteria

The inventoried needs clearly indicate that the YP should provide a Synchronous Request/Reply, Publish/Subscribe Push and Publish/Subscribe Pull as a minimum MEPs.

The inventoried needs clearly indicate that some business contexts have strict and/or higher requirements on availability and response time than other business contexts.

The inventoried needs clearly indicate that some business contexts have security requirement that are absent from other business contexts.

2.4.1.3.2 Recommended structure

Considering:

- the need to provide a minimum solution that is consumer-friendly, affordable, lightweight, flexible and mainstream and the need to provide a minimum solution that covers distinct security needs,

- the need for a subset of Stakeholders to build on top of the minimum solution that represents a common technology footprint and to add significant security functionality to it, in terms of strength, manageability and scalability, but leading to a significant increase of complexity,

- and the need for a subset of Stakeholders to build on top of the minimum solution that represents a common technology footprint and to add significant performance and reliability functionality to it such as availability and response time, but leading to a significant in crease of cost at the provider side,

a single solution including all features would create a too large footprint for too many Stakeholders. As the elements that are only of interest for a subset of Stakeholders, share a common technology footprint, these elements are distinguished as 2 optional Profile Parts of the Yellow Profile that can be combined with the minimum solution that is shared by all Stakeholders. This minimum solution is the "core" part of the Yellow Profile. One optional Profile Part provides the additional security functionality and another optional Profile Part provides the performance and reliability functionality.

"Core" YP:

- Common MEP's
- FR that can easily be met with out-of-box technology solutions
- NFR based on what is commonly available today in a more or less out-of-the-box manner
- Broadly supported elements of the Web Service stack of standards
- Support for big data sets
- Support for binary data
- Support for compression
- PKI based security solutions
- Support for message signing to satisfy integrity and authenticity needs

"Security+" Profile for the YP:

- Side-by-side, only depends on the "core", does not depend on any other set of specifications and can be combined with any other Profile Part in the YP.
- Specifications:
  - Support for Federated security and Policy Management
  - (More) strictness on SSL/TLS
  - (More) strictness on symmetrical/asymmetrical Keys
  - (More) strictness on security patching capabilities

"Advanced" Profile for the YP:

- Side-by-side, only depends on the "core", does not depend on any other set of specifications and can be combined with any other Profile Part in the YP.
- Specifications:
  - Additional Messaging FR: e.g. message persistence, subscriber persistence
  - Higher availability
  - Lower maximum transit time in the SWIM-TI

2.5 Operational Scenarios

P14.01.04 Technical Specifications are driven from user and technical Use Cases detailed in collaboration with 14.01.04.

Current set of use cases are referenced in Appendix A. The current version of the Use Case model is not yet consolidated. Maintenance activities are on going to consolidate the model.

Furthermore, in the table here below are provided the SESAR Enablers relevant for the Yellow Profile.

Table 2-3: SESAR Enablers Relevant for SWIM-TI TS 2.1

Enabler Code	Brief Description	Applicable SWIM Profiles
GGSWIM-52a	Provisioning of ground-ground data communications services to support the distribution of aeronautical information to various stakeholders (airspace users, airports, ATC, ATFCM ...).	**Yellow Profile (YP)**

	Includes provisioning of SDO Reports, Slots, Geographical data (such as Terrain and Obstacle Data) and Digital NOTAMS.	
GGSWIM-52b	Consumption of ground-ground data communications services to support the distribution of aeronautical information to various stakeholders (airspace users, airports, ATC, ATFCM ...). Includes consumption of SDO Reports, Slots, Geographical data (such as Terrain and Obstacle Data) and Digital NOTAMS.	**Yellow Profile (YP)**
GGSWIM-26a	Provisioning of SWIM services for: - Flight plan preparation (validate Flight Plan and generate valid routes) - Flight Plan filing (Submit, update and cancel Flight Plans. Indicate and query Flight status) - Flight Management (Retrieve Flight lists and detailed Flight data) - Airspace Availability (request, compare, retrieve and send Airspace Use Plans) - Airspace structure (Retrieve) - Regulations (Retrieve ANM data) - Slot Management (Slot swapping between AO) - Airport CDM (Departure information and Flight Update Message)	**Yellow Profile (YP)**
GGSWIM-26b	Consumption of ground-ground data communications services to support the distribution of aeronautical information to various stakeholders (airspace users, airports, ATC, ATFCM ...). Includes consumption of SDO Reports, Slots, Geographical data (such as Terrain and Obstacle Data) and Digital NOTAMS.	**Yellow Profile (YP)**
GGSWIM-51b	SWIM Ground-ground messaging services: Ground-ground messaging services that support exchange of messages between any centres (ATCC, Airport ATC, Military, etc).	**Yellow Profile (YP)**
GGSWIM-59b	SWIM security in Step2: SWIM Technical infrastructure to support transport and message level security, identity management (local and federated) to provide authentication and authorization. Also includes use of public key cryptography (PKI).	**Yellow Profile (YP)**

2.6 Functional

2.6.1 Functional decomposition

2.6.2 Functional analysis

SWIM-TI functional decomposition is specified in the SWIM-TI TAD 2.1 [24] at it consists of a set of Functional Blocks.

In the tables here below a brief description of each FB applicable to the Yellow Profile is provided. For further details concerning architectural aspects refer to SWIM-TI TAD 2.1 [24].

FB Name	FB Code	Brief Description
Messaging	**MSG**	**SWIM-TI Messaging FB aims at providing decoupled communication and interoperability between distributed systems including features for effective and reliable communication.**
Security	**SEC**	**SWIM-TI SEC FB provides technical functions enabling the Access Control (AAA - Authentication, Authorization and Audit) and Data Protection in a federation of security domains.**
Data Validation	**DV**	**The SWIM-TI Functional Block Data Validation is able to inspect data payload prior to the service execution and allow or deny a service access.**
Supervision	**SPV**	**The SWIM-TI Functional Block Supervision supports all SWIM related supervision functions collocated with the system.**
Recording	**REC**	**The SWIM-TI Functional Block Recording includes the ability to collect, store and on demand retrieval of information related to communication being performed via the SWIM Interfaces and related to supervision actions and events.**
High Availability	**HA**	**The SWIM-TI Functional Block High Availability is in charge of fault detection, notification and containment.**

Table 2-4: Brief Description of SWIM-TI Functional Blocks Applicable To Yellow Profiles

FB Name	FB Code	Brief Description
Registry	**REG**	**The Registry is the common function to retrieve META Information about the Services and the ATM Information provided by them. It also generically provides discovery/subscription, publication, classification, management (including create, delete, updated, read) and deployment functions for diverse entities such as policies, standards, certifications and categories.**
PKI	**PKI**	**SWIM-TI Common Functional Block PKI is responsible for signing, emitting and maintaining certificates and revocation lists after verification of requester identity for the benefit of SWIM stakeholders that have not this facility.**
Bridge Certification Authority	**BCA**	**SWIM-TI Common Functional Block Bridge Certification Authority (BCA) is a common function part of the security key management in charge of interconnecting trust domains by creating and revoking pair of cross-signed certificates.**

Table 2-5: Brief Description of SWIM-TI Common Functional Blocks Applicable To Yellow Profiles

Functional, non-functional, applicable standards and interface requirements applicable to the SWIM-TI Blue Profile 2.1 for the functional blocks in Table 2 4 are provided in §3 whereas the Technical specifications concerning SWIM-TI PKIs, SWIM-TI BCA and SWIM-TI REG are provided in 14.01.04.D41-002 [29], 14.01.04.D41-003 [30] and 14.01.04.D41-004 [31] respectively.

2.7 Service View

N/A

3 Functional block Functional and non-Functional Requirements

The chapter provides a paragraph for each functional block. Additionally, a first paragraph concerns the overall requirements that apply to two more or SWIM-TI functional blocks.

Each of these paragraphs include functional and non functional requirements according to the SESAR TS Template.

In the overall requirements paragraph are presented the functional requirements which concern functional requirements common to the SWIM TI functional blocks and the non-functional requirements common to the SWIM TI functional blocks.

3.1 Overall Functional and non-Functional requirements

Requirements concerning this category have not been identified yet

3.1.1 Capabilities

It is to be noted that all specifications that refer to configurability through policy, can be satisfied by a local policy as well as by a common policy. Hence the mention of a policy does not mandate the use of a common policy unless there is an explicit mention that the policy is managed through the Registry.

[REQ]

Identifier	REQ-14.01.04-TS-0011.0020
Requirement	The SWIM-TI shall provide a consumer access to services on an access threshold policy basis for overload prevention.
Title	SWIM-TI Performance Overload Protection
Status	<In Progress>
Rationale	To prevent a single consumer from using all available resources, allowing other consumers requests to be processed.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0211.0050
Requirement	The SWIM-TI shall provide policy based resources performance management including: - Resource computation policy, - Resource communication policy, - Resource memory utilization policy, - Scheduling policies
Title	SWIM-TI performance and scalability
Status	<In Progress>
Rationale	The SWIM-TI resources provide the end-to-end communications for SWIM-TI users. It is possible to provide where necessary to support performance, the policies for resource utilisation and scheduling (*Ref: OMG performance QoS characteristics*). Each technical infrastructure resource effecting performance can have policy based management to define computation, communication and memory resource utilisation and scheduling.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0011.0040
Requirement	The Service SLA agreements established between service providers and consumers shall be stored in the Registry.
Title	SWIM SLA Policy Management
Status	<In Progress>
Rationale	The ability to store and update service SLAs (e.g. service performance level, availability)
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

3.1.2 Adaptability

Requirements concerning this category have not been identified yet.

3.1.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.1.3.1 Time behaviour, §3.1.3.2 Resource utilization and §3.1.3.3 Capacity.

SWIM-TI Performance & Scalability

The SWIM-TI (SWIM node) performance will be based on measurements and constraints. The basis of the performances is Operational Work Packages, the ISRM, ICOG study, ED-133 OMG QoS Performance patterns and the NFR assessments for the Step 1 EAD B2B Profile and the Step 1 NOP B2B Profile.

- The information from these sources is a set of measurable entities including Latency, Throughput, Efficiency and Demand.
- Some of the available measurements apply to overall performances covering the ATM specific service, the SWIM-TI and the Communication Network e.g. Latency. It will be possible to transpose the SWIM-TI performance from the data.

The SWIM-TI QoS will provide network signalling priority (e.g. best-effort) and payload quality of service identifier (e.g. payload QoS).

SWIM-TI scalability is supporting the growth of demand on services e.g. the number of service consumers and volume of information exchange.

The set of requirements should include only SWIM-TI specific performance/scalability. Supporting definitions will be included in a separate appendix.

Policies

The SWIM-TI performance and scalability requirements use policies to manage performances. The use of policies is in the use-cases to apply efficiency measures to messages such as the use of compression and message priority. The measures are related to specific rules of the policy and may have a relationship with a particular stakeholder and the context/importance of the message

Further and more specialised performance policies related to efficiency characteristics will be defined later. These later specializations relate for resource-utilization and describe the utilization of computation, communication, and memory resources for network elements.

As a significant contributor to the performance QoS characteristic, the policies will be supporting the performance objectives (functional & non-functional) defined for the SWIM-TI and support the end-users' expectations (often formalized within Service Level Agreements, SLA).

3.1.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.1.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.1.3.3 Capacity

[REQ]

Identifier	REQ-14.01.04-TS-0211.0021
Requirement	The SWIM-TI shall allow connection of up to 1000 aircraft without degrading quality of service.
Title	SWIM-TI Scalability Capacity
Status	<In Progress>
Rationale	Initial estimate only.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>

<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0211.0030
Requirement	The SWIM-TI shall support a minimum bandwidth of 100Mbps for data throughput rate.
Title	SWIM-TI Scalability Capacity
Status	<In Progress>
Rationale	This is based only an on estimate minimum required throughput rate proposed by ICOG study for the Blue Profile. If such throughput rate is required, then the SWIM-TI must be capable to support it. If the Network allows for such rate then, the SWIM-TI for should also be able to support this rate.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0211.0031
Requirement	The SWIM-TI shall support a minimum bandwidth of 500kbps per aircraft for data throughput rate.
Title	SWIM-TI Scalability Capacity
Status	<In Progress>
Rationale	Current SATCOM systems support no less than 500kbps and the bandwidth is expected to grow, so it's realistic to assume at least 500kbps.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.1.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.1.4.1 Confidentiality, §3.1.4.2 Integrity, §3.1.4.3 Non-repudiation, §3.1.4.4 Accountability and §3.1.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.1.4.6) is provided for safety requirements.

3.1.4.1 Confidentiality

Requirements concerning this category have not been identified yet.

3.1.4.2 Integrity

[REQ]

Identifier	REQ-14.01.04-TS-0411.0010
Requirement	The SWIM-TI shall allow to detect unpatched known vulnerabilities and to apply security patches within 3 months after publication of the security patch.
Title	Detect and patch security vulnerabilities within 3 months
Status	<In Progress>
Rationale	Service provision in a potentially hostile environment such as Internet, needs a regular update of software to apply security patches. The longer a known vulnerability remains unpatched, the higher the risk for exploit. For some types of information higher assurance of the integrity is required. It will be desirable to apply security patches within 3 months after publication of the security patch. Note: this requirement covers the Integrity sub-characteristic of Security.
Category	<Maintainability><Security>
Validation Method	
Verification Method	<Analysis>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A

3.1.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.1.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.1.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.1.4.6 Safety

Requirements concerning this category have not been identified yet.

3.1.5 Maintainability

Requirements concerning this category have not been identified yet.

3.1.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.1.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.1.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.1.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.1.5.5 Testability

Requirements concerning this category have not been identified yet.

3.1.6 Reliability

Requirements concerning this category have not been identified yet.

3.1.6.1 Maturity

[REQ]

Identifier	REQ-14.01.04-TS-0611.0010
Requirement	The service provider shall perform a yearly vulnerability assessment consisting of penetration tests. These tests can be performed through a self assessment. The infrastructure shall provide the necessary tools to perform this self-assessment.
Title	Tools for self-assessment of vulnerability
Status	<In Progress>
Rationale	Service provision in a potentially hostile environment such as Internet, needs a regular check for unprotected vulnerabilities. Note: this requirement covers the Maturity sub-characteristic of Reliability.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>

<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0611.0020
Requirement	The service provider shall perform a yearly vulnerability assessment consisting of penetration tests. These tests cannot be performed through a self assessment and need to be performed by a certified organisation.
Title	External assessment of vulnerability
Status	<In Progress>
Rationale	Service provision in a potentially hostile environment such as Internet, needs a regular check for unprotected vulnerabilities. For some types of information higher assurance of the reliability of the assessment is required through a certified party.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.1.6.2 Availability

[REQ]

Identifier	REQ-14.01.04-TS-0611.0030
Requirement	The SWIM Node availability shall be as follows: + Measurement: 99,5% + Measurement conditions: - Not including planned outages, - Full load, no overload, + Observation period: 1 month
Title	Availability over 1 month
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Within the declared window of availability, an unavailability of 3,65 hours per month provides sufficient leeway for affordable provider solutions for use cases that accept some tolerance. Note: this requirement covers the Availability sub-characteristic of Reliability.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A

<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SWIM-TI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0611.0040
Requirement	The SWIM Node availability shall be as follows: + Measurement: 99,97% + Measurement conditions: - Including planned outages, - Full load, no overload, + Observation period: 1 month
Title	Availability over 1 month
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Required by ExtendedFlightPlanSubmissionService in ISRM 1.0. Irrespective of maintenance and/or failure, an unavailability of 13 minutes 8 seconds per month is required for solutions for which the generated impact of unavailability is very high on the overall efficiency and performance of the network. Note: this requirement covers the Availability sub-characteristic of Reliability.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0611.0050
Requirement	The SWIM Node Continuous unavailability shall be as follows: + Measurement: <= 20 minutes + Measurement conditions: - Not including planned outages,

	- Full load, no overload, + Observation period: 1 hour
Title	Availability over 1 hour
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Within the declared window of availability, a continuous unavailability of maximum 20 minutes provides sufficient leeway for affordable provider solutions for use cases that accept some tolerance. Note: this requirement covers the Availability sub-characteristic of Reliability.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0611.0060
Requirement	The SWIM Node Continuous unavailability shall be as follows: + Measurement: <= 2 minutes + Measurement conditions: - Including planned outages, - Full load, no overload, + Observation period: 1 hour
Title	Availability over 1 hour
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Irrespective of maintenance and/or failure, a continuous unavailability of 2 minutes maximum is required for solutions for which the generated impact of unavailability is very high on the overall efficiency and performance of the network. Note: this requirement covers the Availability sub-characteristic of Reliability.
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.1.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.1.6.4 Recoverability

[REQ]

Identifier	REQ-14.01.04-TS-0611.0070
Requirement	The SWIM Node shall provide a Recovery Point Objective (RPO) of no more than 1 hour
Title	RPO no more than 1 hour
Status	<In Progress>
Rationale	Required by ExtendedFlightPlanSubmissionService in ISRM 1.0
Category	<Reliability>
Validation Method	
Verification Method	<Analysis><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.1.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.1.8 Design and Construction Constraints

Requirements concerning this category have not been identified yet.

3.1.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.1.8.2 Interoperability

3.1.8.2.1 Common Time

As described in §2.6, one important security enablers is the Time service (refer also to *Time Analysis B.04.03 deliverable D32-02*). The Time Service Enabler for ATM systems and ATM actors is an enabler for time information related to some of the SWIM-TI operations described in this specification.

The Time Service information may be absolute time information (e.g. for message processing / propagation time) or may be relative to other time information regardless of the exact time: what

matters is the difference of time between two time stamps. Requirements for time can be categorised according to the system needs, e.g.

- **Measurement Time Interval**: Computation of time intervals or distance based on time of signal propagation. Here the required accuracies and precision are more stringent than positional reference time.
- **Communication Signal Synchronization**: Data communication links require measurement of intervals and synchronisation to maintain signal clock. In telecommunications, timing is used to refer to the frequency of the signals or bit rate. Timing requirements are defined for the signal waveforms, bandwidths, types and rates of modulation.
- **Data Processing**: Timing requirements for calculation of processing delays, determining performance delays and metrics

The time reference for aviation is defined to be the Coordinated Universal Time. This time is based on International Atomic Time (TAI) with leap seconds added from time to time as needed to compensate for the Earth's slowing rotation (currently one leap second approximately every 18 months). The leap seconds issue can be an issue if UTC is used for relative time information.

The requirements about the precision on these time information depend on the kind of “ATM application” where it is used. For example, time information for the purpose of ATM application dealing with surveillance data management will need a higher precision than for ATM application dealing with ATS message processing. It is important to remember that an accuracy of 10-3 second on surveillance time information may translate into an accuracy of 34cm for flight at Mach 1 at standard sea level. While the precision of the time information of ATS messages is 30 seconds as the information is stamped as hour and minute.

For the SWIM environment, each SWIM-TI function, all contributing systems and all contributing users must be synchronised to a time reference that satisfies precision requirements.

From this point forward, this can be referred to as the common time reference (CTR).

[REQ]

Identifier	REQ-14.01.04-TS-0811.0010
Requirement	The SWIM-TI shall use a Common Time Reference (CTR) for non-functional (Ex. Time performances) and functional characteristics where a common time reference is needed locally by SWIM-TI and by federated Security Domains.
Title	SWIM-TI Time Service
Status	<In Progress>
Rationale	For the SWIM environment, each SWIM-TI function that uses time information must be synchronised to a time reference that satisfies precision requirements. For instance, security and identity tokens are checked for freshness in order to check if they are still within their valid lifetimes. This requires time synchronization between federated security domains. Another security related example where time synchronization is need is the exchanging of audit information. The time synchronization is important across a distributed environment and not only for security purpose. In fact this is also required for the information gathered and exchanged by the SWIM-TI Recording. According to this, Time Service can be seen as a SWIM-TI service used by several Functions and not only by Security. The time synchronization also plays an important role in WS-ReliableMessaging and in DDS.
Category	<Design><Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.1.8.2.2 Standards

This section introduces, in the scope of the Yellow Profile, the standards that are applicable to Interfaces through which interoperability is provided or required with and for participants that are external to the SWIM-TI as well as participants that are internal to the SWIM-TI.

Each technical configuration at the level of such Interfaces that requires adherence to one or more standards to support and promote interoperability, includes these standards by referencing the standards in this section.

[REQ]

Identifier	REQ-14.01.04-TS-0811.0101
Requirement	IETF RFC 793 Transmission Control Protocol September 1981 http://tools.ietf.org/html/rfc793 shall be supported
Title	Interoperability standard TCP RFC 793
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0102
Requirement	IETF RFC 768 User Datagram Protocol 28 August 1980

	http://tools.ietf.org/html/rfc768 shall be supported.
Title	Interoperability standard. UDP RFC 768
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0103
Requirement	IETF RFC 791 Internet Protocol September 1981 http://tools.ietf.org/html/rfc791 shall be supported
Title	Interoperability standard. IPv4 RFC 791
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0104
Requirement	IETF RFC 2460 Internet Protocol, Version 6 (IPv6) Specification December 1998 http://tools.ietf.org/html/rfc2460 shall be supported
Title	Interoperability standard. IPv6 RFC 2460
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>

Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0110
Requirement	IETF RFC 6101 The Secure Sockets Layer (SSL) Protocol Version 3.0 August 2011 http://tools.ietf.org/html/rfc6101 which is based on IETF INTERNET-DRAFT The SSL Protocol Version 3.0 November 18 1996 http://tools.ietf.org/html/draft-ietf-tls-ssl-version3-00 shall be supported
Title	Interoperability standard. SSLv3 RFC 6101
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0111
Requirement	IETF RFC 2246 The TLS Protocol Version 1.0 January 1999 http://tools.ietf.org/html/rfc2246 shall be supported
Title	Interoperability standard. TLS1.0 RFC 2246
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes

	interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0112
Requirement	IETF RFC 4346 The Transport Layer Security (TLS) Protocol Version 1.1 April 2006 http://tools.ietf.org/html/rfc4346 shall be supported
Title	Interoperability standard. TLS1.1 RFC 4346
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0113
Requirement	IETF RFC 5246 The Transport Layer Security (TLS) Protocol Version 1.2 August 2008 http://tools.ietf.org/html/rfc5246 shall be supported
Title	Interoperability standard. TLS1.2 RFC 5246
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.

Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0114
Requirement	IETF RFC 6176 Prohibiting Secure Sockets Layer (SSL) Version 2.0 March 2011 http://tools.ietf.org/html/rfc6176 shall be supported
Title	Interoperability standard. Prohibit SSL V2.0 RFC 6176
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0115
Requirement	IETF 2616 Hypertext Transfer Protocol -- HTTP/1.1 June 1999 http://tools.ietf.org/html/rfc2616 shall be supported
Title	Interoperability standard. HTTP 1.1 RFC 2616
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	

Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0116
Requirement	IETF informational RFC 2818 HTTP Over TLS May 2000 http://tools.ietf.org/html/rfc2818 shall be supported
Title	Interoperability standard. HTTP over TLS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0118
Requirement	The UDDI standard shall be supported as follows: + OASIS Technical Committee Draft UDDI Version 3.0.2 20041019 http://uddi.org/pubs/uddi_v3.htm + UDDI Version 3.0.2 XML Schema set of XSDs with links documented at https://www.oasis-open.org/committees/uddi-spec/doc/tcspecs.htm#uddiv3 sh + UDDI Version 3.0.2 WSDL Service Interface set of XSDs with links

	documented at https://www.oasis-open.org/committees/uddi-spec/doc/tcspecs.htm#uddiv3
Title	Interoperability standard UDDI v3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0121
Requirement	W3C Note, Simple Object Access Protocol (SOAP) 1.1 08 May 2000 http://www.w3.org/TR/2000/NOTE-SOAP-20000508/ shall be supported
Title	Interoperability standard. SOAP 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0122
Requirement	W3C Recommendation SOAP Version 1.2 Part 1: Messaging Framework

	(Second Edition) 27 April 2007 http://www.w3.org/TR/soap12-part1/ shall be supported W3C Recommendation SOAP Version 1.2 Part 2: Adjuncts (Second Edition) 27 April 2007 http://www.w3.org/TR/2007/REC-soap12-part2-20070427/ shall be supported
Title	Interoperability standard. SOAP 1.2
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0123
Requirement	W3C Recommendation SOAP Message Transmission Optimization Mechanism 25 January 2005 http://www.w3.org/TR/2005/REC-soap12-mtom-20050125/ shall be supported
Title	Interoperability standard. MTOM
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0124
Requirement	W3C Member Submission SOAP 1.1 Binding for MTOM 1.0 05 April 2006 http://www.w3.org/Submission/soap11mtom10/ shall be supported
Title	Interoperability standard. SOAP 1.1 Binding for MTOM

Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0125
Requirement	W3C Note Web Services Description Language (WSDL) 1.1 15 March 2001 http://www.w3.org/TR/wsdl shall be supported
Title	Interoperability standard. WSDL 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0126
Requirement	W3C Member Submission Binding Extension for SOAP 1.2 05 April 2006 http://www.w3.org/Submission/wsdl11soap12/ shall be supported
Title	Interoperability standard. WSDL 1.1 binding extension for SOAP 1.2

Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0127
Requirement	W3C Recommendation Web Services Description Language (WSDL) Version 2.0 Part 1: Core Language 26 June 2007 http://www.w3.org/TR/wsdl20/ shall be supported W3C Recommendation Web Services Description Language (WSDL) Version 2.0 Part 2: Adjuncts 26 June 2007 http://www.w3.org/TR/2007/REC-wsdl20-adjuncts-20070626/ shall be supported
Title	Interoperability standard. WSDL 2.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0128
Requirement	W3C Working Group Note Web Services Description Language (WSDL) Version 2.0 SOAP 1.1 Binding 26 June 2007 http://www.w3.org/TR/wsdl20-soap11-binding/ shall be supported
Title	Interoperability standard. WSDL 2.0 SOAP 1.1 Binding
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0129
Requirement	OASIS WSI Basic Profile Version 1.2, Final Material, 2010-11-09 http://ws-i.org/profiles/basicprofile-1.2-2010-11-09.html shall be supported in the following manner: A requirement with a reference to this WSI standard does not imply inclusion of all the standards referenced in this WSI standard. The content of this WSI standard overrides all the standards referenced in this WSI standard in so far these standards are referenced at peer level in the same requirement
Title	Interoperability standard. WSI BP 1.2
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0130
Requirement	OASIS WSI Basic Profile Version 2.0, Final Material, 2010-11-09 http://ws-i.org/profiles/basicprofile-2.0-2010-11-09.html shall be supported in the following manner: A requirement with a reference to this WSI standard does not imply inclusion of all the standards referenced in this WSI standard. The content of this WSI standard overrides all the standards referenced in this WSI standard in so far these standards are referenced at peer level in the same requirement
Title	Interoperability standard. WSI BP 2.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0131
Requirement	OASIS WS-I Final Material Basic Security Profile Version 1.1 2010-01-24 http://www.ws-i.org/Profiles/BasicSecurityProfile-1.1.html shall be supported in the following manner: A requirement with a reference to this WSI standard does not imply inclusion of all the standards referenced in this WSI standard. The content of this WSI standard overrides all the standards referenced in this WSI standard in so far these standards are referenced at peer level in the same requirement
Title	Interoperability standard. WSI BSP 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0132
Requirement	OASIS Standard Web Services Base Notification 1.3 (WS-BaseNotification) 1 October 2006 http://docs.oasis-open.org/wsn/wsn-ws_base_notification-1.3-spec-os.pdf shall be supported XSDs: http://docs.oasis-open.org/wsn/b-2.xsd shall be supported WSDL 1.1: http://docs.oasis-open.org/wsn/bw-2.wsdl shall be supported
Title	Interoperability standard. WS-BaseNotification 1.3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A

<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0133
Requirement	OASIS Standard Web Services Brokered Notification 1.3 (WS-BrokeredNotification), 1 October 2006 http://docs.oasis-open.org/wsn/wsn-ws_brokered_notification-1.3-spec-os.pdf shall be supported XSD: http://docs.oasis-open.org/wsn/br-2.xsd shall be supported WSDL 1.1: http://docs.oasis-open.org/wsn/brw-2.wsdl shall be supported
Title	Interoperability standard. WS-BrokeredNotification 1.3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0134
Requirement	OASIS Standard Web Services Topics 1.3 (WS-Topics) 1 October 2006 http://docs.oasis-open.org/wsn/wsn-ws_topics-1.3-spec-os.pdf shall be supported XSD:http://docs.oasis-open.org/wsn/t-1.xsd shall be supported
Title	Interoperability standard. Web Services Topics 1.3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	

Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0136
Requirement	OASIS Standard Specification Web Services Security: SOAP Message Security 1.1 (WS-Security 2004) 1 February 2006 https://www.oasis-open.org/committees/download.php/16790/wss-v1.1-spec-os-SOAPMessageSecurity.pdf shall be supported
Title	Interoperability standard. WS-Security 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0137
Requirement	OASIS Standard incorporating Approved Errata 01 WS-SecurityPolicy 1.3 25 April 2012 http://docs.oasis-open.org/ws-sx/ws-securitypolicy/v1.3/errata01/ws-securitypolicy-1.3-errata01-complete.html shall be supported
Title	Interoperability standard. WS-SecurityPolicy 1.3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0138
Requirement	W3C Recommendation Web Services Policy 1.5 - Framework 04 September 2007 http://www.w3.org/TR/2007/REC-ws-policy-20070904/ shall be supported
Title	Interoperability standard. Web Services Policy 1.5
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0139
Requirement	OASIS Standard WS-SecureConversation 1.3 1 March 2007 http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512/ws-secureconversation-1.3-os.pdf shall be supported
Title	Interoperability standard. WS-SecureConversation 1.3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0141
Requirement	OASIS Standard WS-Trust 1.4 incorporating Approved Errata 01 25 April 2012 http://docs.oasis-open.org/ws-sx/ws-trust/v1.4/errata01/os/ws-trust-1.4-errata01-os-complete.pdf shall be supported
Title	Interoperability standard. WS-Trust 1.4

Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0142
Requirement	W3C Recommendation Web Services Addressing 1.0 - Core 9 May 2006 http://www.w3.org/TR/2006/REC-ws-addr-core-20060509/ shall be supported
Title	Interoperability standard. WS-Addressing 1.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0143
Requirement	W3C Recommendation Web Services Addressing 1.0 - SOAP Binding 9 May 2006 http://www.w3.org/TR/ws-addr-soap/ shall be supported
Title	Interoperability standard. Web Services Addressing 1.0 - SOAP Binding
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0144
Requirement	W3C Recommendation XML Encryption Syntax and Processing 10 December 2002 http://www.w3.org/TR/2002/REC-xmlenc-core-20021210/ shall be supported
Title	Interoperability standard. XML-Encrypt
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0145
Requirement	W3C Recommendation XML Signature Syntax and Processing (Second Edition) 10 June 2008 http://www.w3.org/TR/xmldsig-core/ shall be supported
Title	Interoperability standard. XML Signature
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0146
Requirement	W3C Recommendation Extensible Markup Language (XML) 1.0 (Fifth Edition) 26 November 2008 http://www.w3.org/TR/xml/ shall be supported
Title	Interoperability standard. XML 1.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0147
Requirement	W3C Recommendation Extensible Markup Language (XML) 1.0 (Fourth Edition) 16 August 2006, edited in place 29 September 2006 http://www.w3.org/TR/2006/REC-xml-20060816/ shall be supported
Title	Interoperability standard. XML 1.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0149
Requirement	OASIS Standard 200401 Web Services Security X.509 Certificate Token Profile, March 2004 http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-x509-token-profile-1.0.pdf shall be supported
Title	Interoperability standard. WSSE X.509 Certificate Token Profile 1.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0150
Requirement	OASIS Standard Specification Web Services Security UsernameToken Profile 1.1 1 February 2006 http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-UsernameTokenProfile.pdf shall be supported
Title	Interoperability standard. WSSE Security UsernameToken Profile 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0151
Requirement	OASIS Standard Specification Web Services Security X.509 Certificate Token Profile 1.1 1 February 2006 http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-x509TokenProfile.pdf shall be supported
Title	Interoperability standard; WSSE X.509 Certificate Token Profile 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.

Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0152
Requirement	OASIS Standard Web Services Security SAML Token Profile 1.1 1 February 2006 http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-SAMLTokenProfile.pdf shall be supported
Title	Interoperability standard; WSSE SAML Token Profile 1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0153
Requirement	W3C Recommendation XML Schema Part 1: Structures Second Edition 28 October 2004 http://www.w3.org/TR/xmlschema-1/ shall be supported W3C Recommendation XML Schema Part 2: Datatypes Second Edition 28 October 2004 http://www.w3.org/TR/xmlschema-2/ shall be supported
Title	Interoperability standard. XML Schema 1.0
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0154
Requirement	MIME Media Types http://www.iana.org/assignments/media-types shall be supported
Title	Interoperability standard. IANA registered MIME Media Types
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0155
Requirement	IETF RFC 6960 X.509 Internet Public Key Infrastructure Online Certificate Status Protocol - OCSP June 2013 http://tools.ietf.org/html/rfc6960 shall be supported
Title	Interoperability standard. OCSP
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0156
Requirement	IETF RFC 4510 Proposed Standard, Lightweight Directory Access Protocol (LDAP): Technical Specification Road Map, June 2006 http://www.rfc-editor.org/rfc/rfc4510.txt shall be supported
Title	Interoperability standard. LDAPv3
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0157
Requirement	IETF RFC 5280 Proposed Standard, Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile, May 2008 http://www.rfc-editor.org/rfc/rfc5280.txt shall be supported
Title	Interoperability standard. Internet PKI Certificate and CRL Profile
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A

<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0158
Requirement	IETF RFC 4523 Proposed Standard, Lightweight Directory Access Protocol (LDAP) Schema Definitions for X.509 Certificates, June 2006 http://www.rfc-editor.org/rfc/rfc4523.txt shall be supported
Title	Interoperability standard. LDAP Schema Definitions for X.509 Certificates
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0159
Requirement	IETF RFC 4158 Internet X.509 Public Key Infrastructure: Certification Path Building September 2005 http://tools.ietf.org/html/rfc4158 shall be supported
Title	Interoperability standard. Public Key Infrastructure: Certification Path Building
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0160
Requirement	IETF RFC 5055 Proposed Standard, Server-Based Certificate Validation Protocol (SCVP), December 2007 http://www.rfc-editor.org/rfc/rfc5055.txt shall be supported
Title	Interoperability standard. SCVP
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0161
Requirement	IETF RFC 5816 Proposed Standard, RFC ESSCertIDv2 Update for RFC 3161, March 2010 http://www.rfc-editor.org/rfc/rfc5816.txt shall be supported
Title	Interoperability standard. ESSCertIDv2 Update for TSA
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0162
Requirement	IETF RFC 3161 Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP) August 2001 http://www.rfc-editor.org/rfc/rfc3161.txt shall be supported
Title	Interoperability standard. TSA
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0163
Requirement	IETF RFC 5652 Internet Standard, Cryptographic Message Syntax (CMS), September 2009 http://www.rfc-editor.org/rfc/rfc5652.txt shall be supported
Title	Interoperability standard. CMS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0166
Requirement	IETF RFC 6434, Memo, IPv6 Node Requirements, December 2011 http://tools.ietf.org/html/rfc6434 shall be supported in the following manner: Reference to this specification is equivalent to inclusion of all protocol functions

	described in this document
Title	Interoperability standard. IPv6 Node Requirements
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0168
Requirement	IETF RFC 1122 Internet Standard, Requirements for Internet Hosts -- Communication Layers, October 1989 http://tools.ietf.org/html/rfc1122 shall be supported
Title	Interoperability standard. Requirements for Internet Hosts -- Communication Layers
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0169
Requirement	IETF RFC 792 Internet Standard, INTERNET CONTROL MESSAGE PROTOCOL, September 1981 http://tools.ietf.org/html/rfc792 shall be supported
Title	Interoperability standard. ICMP
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes

	interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0170
Requirement	IETF RFC 950, Internet Standard, Internet Standard Subnetting Procedure, August 1985 http://tools.ietf.org/html/rfc950 shall be supported
Title	Interoperability standard. Internet Standard Subnetting Procedure
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0171
Requirement	IETF RFC 6918 Proposed Standard, Formally Deprecating Some ICMPv4 Message Types, April 2013 http://tools.ietf.org/html/rfc6918 shall be supported
Title	Interoperability standard. Formally Deprecating Some ICMPv4 Message Types
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes

	interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0173
Requirement	OGC Web Map Server Implementation Specification Version: 1.3.0, 2006-03-15 http://www.opengeospatial.org/standards/wms shall be supported in the following manner: Only the elements of this specification that are related to contract and protocol binding are relevant
Title	Interoperability standard. WMS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0174
Requirement	OGC Web Feature Service Interface Standard Version 2.0, 2010-11-02 (also ISO/DIS 19142) http://www.opengeospatial.org/standards/wfs shall be supported in the following manner: Only the elements of this specification that are related to contract and protocol binding are relevant
Title	Interoperability standard. WFS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0175
Requirement	OGC Web Processing Service Version: 1.0.0 2007-06-08 http://www.opengeospatial.org/standards/wps shall be supported in the following manner: Only the elements of this specification that are related to contract and protocol binding are relevant
Title	Interoperability standard. WPS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0176
Requirement	OGC WCS 2.0 Interface Standard - Core Version: 2.0.0 2010-10-27 http://www.opengeospatial.org/standards/wcs shall be supported in the following manner: Only the elements of this specification that are related to contract and protocol binding are relevant
Title	Interoperability standard. WCS
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A

<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0177
Requirement	OASIS Standard Web Services Federation Language (WS-Federation) Version 1.2 22, May 2009 http://docs.oasis-open.org/wsfed/federation/v1.2/ws-federation.pdf shall be supported
Title	Interoperability standard. WS-Federation
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0178
Requirement	OASIS Standard eXtensible Access Control Markup Language (XACML) Version 3.0, 22 January 2013 http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-spec-en.doc shall be supported
Title	Interoperability standard. XACML
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0811.0180
Requirement	IETF 5905 Proposed Standard, Network Time Protocol Version 4: Protocol and Algorithms Specification https://tools.ietf.org/html/rfc5905 shall be supported
Title	Interoperability standard. NTP
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0181
Requirement	OASIS Standard Web Services Reliable Messaging (WS-ReliableMessaging) Version 1.2, 2 February 2009 http://docs.oasis-open.org/ws-rx/wsrm/v1.2/wsrm.html shall be supported
Title	Interoperability standard. WS-ReliableMessaging
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0182
Requirement	OASIS Standard incorporating Approved Errata Web Services Reliable Messaging Policy 2 Assertion (WS-RM Policy) Version 1.1 07 January 2008 http://docs.oasis-open.org/ws-rx/wsrmp/v1.1/wsrmp.html shall be supported
Title	Interoperability standard. WS-ReliableMessaging Policy
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0186
Requirement	W3C Recommendation Web Services Policy 1.5 - Attachment 04 September 2007 http://www.w3.org/TR/ws-policy-attach/ shall be supported
Title	Interoperability standard. WS-PolicyAttachment
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0811.0187
Requirement	RSA Laboratories PKCS #12 v1.1: Personal Information Exchange Syntax, October 27, 2012 Standard http://www.emc.com/emc-plus/rsa-labs/standards-initiatives/pkcs12-personal-information-exchange-syntax-standard.htm shall be supported
Title	Interoperability standard. PKCS #12 v1.1
Status	<In Progress>
Rationale	Compliance with well-known and widely used standard promotes interoperability.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.1.8.3 Installability

Requirements concerning this category have not been identified yet.

3.1.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.1.9 Functional block Interface Requirements

3.1.9.1 External Service Interfaces

3.1.9.1.1 Technical configuration

3.1.9.1.1.1 The bindings

[REQ]

Identifier	REQ-14.01.04-TS-0901.0324
Requirement	SNTP shall be instantiated over UDP using the following binding. + MEP: as defined by standard + Fault handling: as defined by standard + Encoding. - as defined per standard + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: - formalism of contract description: as defined by standard - minimum: not applicable - reference: as defined by standard + Interoperability: none
Title	Interface binding. SNTP over UDP.
Status	<In Progress>
Rationale	SNTP supports a system for provision of a common time reference. While the level of accuracy and reliability provided through SNTP can be very high (e.g. precision of a few milliseconds can be demonstrated), depending on the context this can not always be guaranteed .
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	PKI	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0102	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0180	N/A

3.1.9.2 Network Technical Interface Requirements

[REQ]

Identifier	REQ-14.01.04-TS-0910.0201
Requirement	Network Technical Interface shall be instantiated according to the following binding + IP Unicast IPv4 + Mapping IP to IP + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: none + Interoperability: none
Title	IP Unicast IPv4
Status	<In Progress>
Rationale	Basic Unicast IPv4 binding
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0102	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0103	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0168	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0169	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0170	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0171	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0301	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0303	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0312	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0314	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0317	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0318	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0319	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0320	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0321	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0322	N/A

<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0323	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0324	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0325	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0327	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0328	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0331	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0332	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0333	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0202
Requirement	Network Technical Interface shall be instantiated according to the following binding: + IP Unicast IPv6 + Mapping IP to IP + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: none + Interoperability: none
Title	IP Unicast IPv6
Status	<In Progress>
Rationale	Basic Unicast IPv6 binding
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0102	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0104	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0168	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0301	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0303	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0312	N/A

<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0314	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0317	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0318	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0319	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0320	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0321	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0322	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0323	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0324	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0325	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0327	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0328	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0331	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0332	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0333	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0209
Requirement	Network Technical Interface shall be instantiated according to the following binding: + IP Unicast IPv4 with network security + Mapping IP to IP + Security: - Confidentiality: network - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: none + Interoperability: none
Title	IP Unicast IPv4 with network security
Status	<In Progress>
Rationale	Basic Unicast IPv4 binding with network security
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0102	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0103	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0168	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0169	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0170	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0171	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0301	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0303	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0312	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0314	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0317	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0318	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0324	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0327	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0328	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0331	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0332	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0333	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0910.0210
Requirement	Network Technical Interface shall be instantiated according to the following binding: + IP Unicast IPv6 with network security + Mapping IP to IP + Security: - Confidentiality: network - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: none + Interoperability: none
Title	IP Unicast IPv6 with network security
Status	<In Progress>
Rationale	Basic Unicast IPv6 binding with network security
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0102	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0104	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0168	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0301	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0303	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0312	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0314	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0317	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0318	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0324	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0327	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0328	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0331	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0332	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0333	N/A

3.1.9.3 Network Requirements

[REQ]

Identifier	REQ-14.01.04-TS-0910.0001
Requirement	Communication Network Infrastructure shall provide IPv6 support.
Title	Communication Network Infrastructure IPv6 support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context, the large number of interconnected systems, performance and Quality of Service (QoS) the adoption of IPv6 at network level is needed.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-1	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0040
Requirement	Communication Network Infrastructure shall provide IPv4 support.
Title	Communication Network Infrastructure IPv4 support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context, the large number of interconnected systems generally belonging to several different networks adoption of IPv4 at network level is needed.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-4	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0010
Requirement	Communication Network Infrastructure shall provide IP routing.
Title	Communication Network Infrastructure IP routing support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context and the large number of interconnected systems generally belonging to several different IP networks the support of IP routing at network level is needed.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-2	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0020
Requirement	Communication Network Infrastructure shall allow to use Transfer Control Protocol (TCP).
Title	Communication Network Infrastructure TCP support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context and the large number of interconnected systems which need to exchange information in efficient and reliable manner, the support of TCP protocol at network level is needed.
Category	<Interface><Reliability>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-3	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0060
Requirement	Communication Network Infrastructure shall allow to use User Datagram Protocol (UDP).
Title	Communication Network Infrastructure UDP delivery support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN).

	Taking into account the overall context, the large number of interconnected systems and the need in some cases (e.g. DDS technology) of transmitting information in time-sensitive manner and also to support the NTP protocol the adoption of UDP protocol is needed.
Category	<Interface><Reliability>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-6	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0030
Requirement	Communication Network Infrastructure shall provide encryption capabilities (network level security).
Title	Communication Network Infrastructure encryption support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context and the sensitivity of the exchanged data for security reasons encryption and decryption techniques support at network level is needed.
Category	<Interface><Security>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-12	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>

<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0010.0090
Requirement	Communication Network Infrastructure shall provide a minimum bandwidth of 1 Mb/s upstream and downstream.
Title	Communication Network Infrastructure Minimum bandwidth
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context, the large number of interconnected systems and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth of at least 1 Mb/s at network level is needed.
Category	<Interface><Performance>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-10	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0910.0100
Requirement	Communication Network Infrastructure shall provide a minimum peak bandwidth of 10 Mb/s.
Title	Communication Network Infrastructure Minimum Peak bandwidth
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using a Wide Area Network (WAN). Taking into account the overall context and the large number of interconnected systems and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth higher than 10 Mb/s is not needed.
Category	<Interface><Performance>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-11	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0910.0160
Requirement	Communication Network Infrastructure shall support unicast over TCP/IP
Title	Communication Network Infrastructure TCP/IP Unicast support
Status	<In Progress>
Rationale	All the profiles currently defined uses the unicast communication between two stakeholders.
Category	<Functional><Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-4	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0910.0170
Requirement	Communication Network Infrastructure shall support unicast through UDP/IP
Title	Communication Network Infrastructure unicast support through UDP/IP
Status	<In Progress>
Rationale	The Yellow Profile uses the unicast communication between two participants in a communication. UDP is used for instance with the NTP time protocol.
Category	<Functional><Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

3.2 Messaging Functional and non-Functional Requirements

In this chapter functional and non-functional requirements concerning the SWIM-TI MSG are provided. These requirements have been specified according to SWIM-TI Technical Use Case [11], [Appendix A], to 14.01.03.D33 [24] and to §2.6.1.

3.2.1 Capabilities

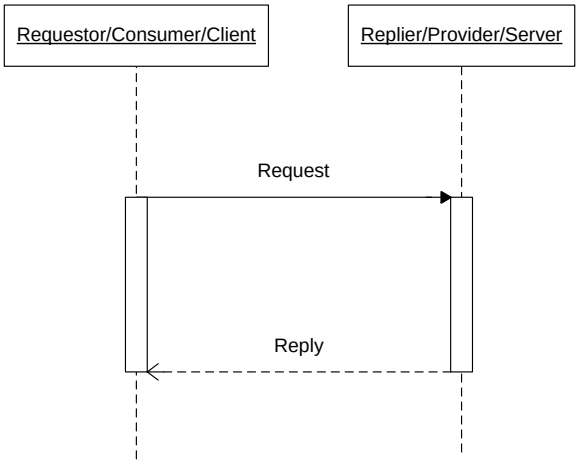
This section provides the functional requirements of the SWIM-TI MSG as introduced and grouped in §2.6.1.

- Distribution, §3.2.1.1
- Filtering, §3.2.1.2
- Data Management, §3.2.1.3
- Routing, §3.2.1.4
- Protocol Bridge, §3.2.1.5
- Other functional requirements, §3.2.1.6.

3.2.1.1 Distribution

[REQ]

Identifier	REQ-14.01.04-TS-0001.0350
Requirement	The SWIM-TI Messaging shall provide the Synchronous Request/Reply Message Exchange Pattern (SRR-MEP).
Title	Support of Synchronous Request/Reply Message Exchange Pattern
Status	<In Progress>
Rationale	Distribution function is the core function of the SWIM-TI Messaging. The Distribution function is realized via the support to specific Message Exchange Patterns (MEPs). The Synchronous Request/Reply or Request/Response is one of the identified MEPs needed enabling the exchanging of information between ATM participants. An unique identifier of this MEP has been identified: SRR-MEP. This identifiers shall be used to trace relevant requirements to MEP definitions provided in SWIM-TI TAD and used in SWIM Profiles. SRR-MEP is characterized as follows: - Conversation direction: 2 way (Consumer -> Provider -> Consumer) - Cardinality: 1-1 - Decoupling: No Time decoupling; No Space decoupling, No Synchronization decoupling for consumer Options trying to answer AIRBUS comment #9: OPT1: we just refer to TAD: SRR-MEP is describe in 14.01.03 TAD (extranet

	link) OPT2: we just copy and paste TAD definition: In SRR-MEP a requestor sends a message to the replier, who in turn processes the request and returns a response. Synchronous request/reply MEP holds a connection open and awaiting response until it's provided or a predefined timeout.  Synchronous Request/ Reply OPT3: we include the MEP definitions into our UML model and then we provide a reference (extranet link or model embedded in this one as we do for use cases.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0400
Requirement	The SWIM-TI Messaging shall provide the Push style Publish/Subscribe Message Exchange Pattern (PSPUSH-MEP).
Title	Support of Publish/Subscribe Push Message Exchange Pattern
Status	<In Progress>
Rationale	Distribution function is the core function of the SWIM-TI Messaging . The Distribution function is realized via the support to specific Message Exchange Patterns (MEPs). The Publish/Subscribe Push is one of the identified MEPs needed to enable the exchanging of information between ATM participants. An unique identifier of this MEP has been identified: PSPUSH-MEP. This

	identifiers shall be used to trace relevant requirements to MEP definitions provided in SWIM-TI TAD and used in SWIM Profiles. PSPUSH-MEP is characterized as follows: - Conversation direction: 1 way (Publisher -> Consumer) - Cardinality: many-many - Decoupling: Time decoupling; Space decoupling, Synchronization decoupling The main difference with respect to the other MEPs is the support of full time, space and synchronization decoupling.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0410
Requirement	The SWIM-TI Messaging shall provide the Pull style Publish/Subscribe Message Exchange Pattern (PSPULL-MEP).
Title	Support of Publish/Subscribe Pull Message Exchange Pattern
Status	<In Progress>
Rationale	Distribution function is the core function of the SWIM-TI Messaging. The Distribution function is realized via the support to specific Message Exchange Patterns (MEPs). The Publish/Subscribe Pull is one of the identified MEPs needed to enable the exchanging of information between ATM participants. An unique identifier of this MEP has been identified: PSPULL-MEP. This identifiers shall be used to trace relevant requirements to MEP definitions provided in SWIM-TI TAD and used in SWIM Profiles. PSPULL-MEP is characterized as follows: - Conversation direction: a composition of 1 way (Publisher -> Consumer) and SRR-MEP; the latter is used by the subscriber to retrieve the information/message. This is the difference with respect to the PSPUSH-MEP. - Cardinality: many-many - Decoupling: Time decoupling; Space decoupling, Synchronization decoupling The main difference with respect to the other MEPs is the support of full time, space and synchronization decoupling. For what concerns the OPULL-MEP, it is important to note that in this case the subscriber retrieves (by SRR-MEP) the messages from a intermediary and not directly from the message source as happens for OPULL-MEP.
Category	<Functional>
Validation Method	

Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0420
Requirement	The SWIM-TI Messaging shall provide the Topic based Push style Publish/Subscribe Message Exchange Pattern (TPSPUSH-MEP).
Title	Support of Topic Based Publish/Subscribe Push Message Exchange Pattern
Status	<In Progress>
Rationale	Distribution function is the core function of the SWIM-TI Messaging. The Distribution function is realized via the support to specific Message Exchange Patterns (MEPs). Push/Pull Publish/Subscribe MEPs can be further specialized as follows: - Topic based P/S - Queue based P/S (also known as "Fan-out" P/S) The Topic based Publish/Subscribe Push is one of the identified MEPs needed to enable the exchanging of information between ATM participants. An unique identifier of this MEP has been identified: TPSPUSH-MEP. This identifiers shall be used to trace relevant requirements to MEP definitions provided in SWIM-TI TAD and used in SWIM Profiles.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0400	<Full>
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0430
Requirement	The SWIM-TI Messaging shall provide the Topic Based Pull style Publish/Subscribe Message Exchange Pattern (TPSPULL-MEP).
Title	Support of Topic Based Publish/Subscribe Pull Message Exchange Pattern
Status	<In Progress>
Rationale	Distribution function is the core function of the SWIM-TI Messaging. The Distribution function is realized via the support to specific Message Exchange Patterns (MEPs). Push/Pull Publish/Subscribe MEPs can be further specialized as follows: - Topic based P/S - Queue based P/S (also known as "Fan-out" P/S) The Topic Based Publish/Subscribe Pull is one of the identified MEPs needed to enable the exchanging of information between ATM participants. An unique identifier of this MEP has been identified: TPSPULL-MEP. This identifiers shall be used to trace relevant requirements to MEP definitions provided in SWIM-TI TAD and used in SWIM Profiles.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0410	<Full>
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0621
Requirement	SWIM-TI Messaging TPSPULL-MEP shall allow subscribers to unsubscribe a subscription.
Title	Unsubscribe for TPSPULL-MEP
Status	<In Progress>
Rationale	When messages are no longer needed, it must be possible to stop all activity related to a subscription and remove the subscription.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0622
Requirement	SWIM-TI Messaging TPSPULL-MEP shall allow subscribers to pause the subscription.
Title	Pause for TPSPULL-MEP
Status	<In Progress>
Rationale	It must be possible to temporarily suspend all activity related to a subscription without loosing the subscription or its configuration as well as to reactivate the suspended subscription
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0631
Requirement	SWIM-TI Messaging TPSPUSH-MEP shall allow subscribers to unsubscribe a subscription.
Title	Unsubscribe for TPSPUSH-MEP
Status	<In Progress>
Rationale	When messages are no longer needed, it must be possible to stop all activity related to a subscription and remove the subscription.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>

<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0632
Requirement	SWIM-TI Messaging TPSPUSH-MEP shall allow subscribers to pause the subscription.
Title	Pause for TPSPUSH-MEP
Status	<In Progress>
Rationale	It must be possible to temporarily suspend all activity related to a subscription without loosing the subscription or its configuration as well as to reactivate the suspended subscription
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0720
Requirement	SWIM-TI Messaging PSPULL-MEP shall provide Subscribers with the ability to specify subscription expiration time.
Title	PSPULL-MEP Subscription Expiration support
Status	<In Progress>
Rationale	At expiration, no more new messages should be forwarded to the subscriber. Existing undelivered messages remain available for delivery to the subscriber. In some use cases, the end-date of interest in events precisely known in advance. It is then much more efficient for the subscriber to have an automatic cancellation of the subscription than having to actively monitor the subscriptions. Also for the subscription manager an automatic expiration of a subscription, ensure less unnecessary load.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0730

Requirement	SWIM-TI Messaging PSPUSH-MEP shall provide Subscribers with the ability to specify subscription expiration time.
Title	PSPUSH-MEP Subscription Expiration support
Status	<In Progress>
Rationale	At expiration, no more new messages should be forwarded to the subscriber. Existing undelivered messages remain available for delivery to the subscriber. In some use cases, the end-date of interest in events precisely known in advance. It is then much more efficient for the subscriber to have an automatic cancellation of the subscription than having to actively monitor the subscriptions. Also for the subscription manager an automatic expiration of a subscription, ensure less unnecessary load.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.2.1.2 Filtering

Requirements concerning this category have not been identified yet.

3.2.1.3 Data Management

[REQ]

Identifier	REQ-14.01.04-TS-0001.0300
Requirement	The SWIM-TI Messaging shall permit exchanging of message content that uses ASCII format.
Title	SWIM-TI Messaging Supported Data Representation
Status	<In Progress>
Rationale	For universality: to be able to support “any” service, SWIM-TI MSG shall permit exchange of data of any type, including textual (e.g. ASCII, XML, or Unicode) and binary (e.g. graphical information, or arbitrary binary data). Further details concerning how these data representations are related to SWIM-TI messaging layer are provided in SWIM-TI Technical Specification §3.2.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	09.19-D03-150	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0301
Requirement	The SWIM-TI Messaging shall permit exchanging of message content that uses Unicode format.
Title	SWIM-TI Messaging Supported Data Representation
Status	<In Progress>
Rationale	For universality: to be able to support “any” service, SWIM-TI MSG shall permit exchange of data of any type, including textual (e.g. ASCII, XML, or Unicode) and binary (e.g. graphical information, or arbitrary binary data). Further details concerning how these data representations are related to SWIM-TI messaging layer are provided in SWIM-TI Technical Specification §3.2.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	09.19-D03-150	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0302
Requirement	The SWIM-TI Messaging shall permit exchanging of message content that uses XML format.
Title	SWIM-TI Messaging Supported Data Representation
Status	<In Progress>
Rationale	For universality: to be able to support “any” service, SWIM-TI MSG shall permit exchange of data of any type, including textual (e.g. ASCII, XML, or Unicode) and binary (e.g. graphical information, or arbitrary binary data). Further details concerning how these data representations are related to SWIM-TI messaging layer are provided in SWIM-TI Technical Specification §3.2.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	09.19-D03-150	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0313
Requirement	The SWIM-TI Messaging shall be able to perform following operations on the application data in XML format according XML Schema Definition: + verification of the validity + access the application data + transformation to another format

Title	Understand XML Schema Definition
Status	<In Progress>
Rationale	Some SWIM-TI functions may need to understand the structure of the message content. E.g. functions that need to transform the encoding of the content or functions that need to take decisions based on the content such as routing or security related functions.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0303
Requirement	The SWIM-TI Messaging shall permit exchanging of message content that uses Binary format.
Title	SWIM-TI Messaging Supported Data Representation
Status	<In Progress>
Rationale	For universality: to be able to support “any” service, SWIM-TI MSG shall permit exchange of data of any type, including textual (e.g. ASCII, XML, or Unicode) and binary (e.g. graphical information, or arbitrary binary data). Further details concerning how these data representations are related to SWIM-TI messaging layer are provided in SWIM-TI Technical Specification §3.2.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	09.19-D03-150	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0304
Requirement	The SWIM-TI Messaging shall permit exchanging of message content that uses Base64 format.
Title	SWIM-TI Messaging Supported Data Representation
Status	<In Progress>
Rationale	For universality: to be able to support “any” service, SWIM-TI MSG shall permit exchange of data of any type, including textual (e.g. ASCII, XML, or Unicode) and binary (e.g. graphical information, or arbitrary binary data). Further details concerning how these data representations are related to SWIM-TI messaging layer are provided in SWIM-TI Technical Specification §3.2.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	09.19-D03-150	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.2.1.4 Messages Routing

[REQ]

Identifier	REQ-14.01.04-TS-0001.0261
Requirement	SWIM-TI Message Routing shall provide routing based on the content of the message.
	Content based routing
	<In Progress>
	The SWIM-TI Message Routing shall determine the destination of a message as well as handle the failure transparency through for instance retries and sending of the message to alternative destinations.
	<Functional>
	<Review of Design><Test>

[REQ Trace]

<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0262
Requirement	SWIM-TI Message Routing shall provide routing based on the subject of the message.
	Subject based routing
	<In Progress>
	The SWIM-TI Message Routing shall determine the destination of a message as well as handle the failure transparency through for instance retries and sending of the message to alternative destinations.
	<Functional>
	<Review of Design><Test>

[REQ Trace]

<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

Identifier	REQ-14.01.04-TS-0001.0263
Requirement	SWIM-TI Message Routing shall provide routing based on the context of the message.
	Context-based routing
	<In Progress>
	The SWIM-TI Message Routing shall determine the destination of a message as well as handle the failure transparency through for instance retries and sending of the message to alternative destinations.
	<Functional>
	<Review of Design><Test>

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0211
Requirement	The SWIM-TI Messaging shall provide, in the case of Request/Response interaction, the capability to perform a predefined number of automatic request retries in case no response is received within predefined time duration.
Title	Enable request retries in Request/Response when no response within a time period
Status	<In Progress>
Rationale	To handle network failures and to provide some transparency during failover; it is necessary to support automatic request retries. This requirement contributes to support ED-133 IOP-FSM-142-MDW.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0220
Requirement	When supported by underlying transport protocol, the SWIM-TI Messaging shall support request identification and include in all the retries for the same request identification.
Title	Reuse same request identification during a request retry in a Request/Response interaction.
Status	<In Progress>
Rationale	When it is needed to enforce at most once semantics, request issuers should be able to provide some identification to the request.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

Identifier	REQ-14.01.04-TS-0001.0242
Requirement	SWIM-TI Message Routing shall allow routing by enforcing Routing Policy.
	Policy Based SWIM-TI Message Routing
	<In Progress>
	Not all the information exchanged through the SWIM-TI may need the same handling by the SWIM-TI Message Routing.
	<Design><Functional>
	<Review of Design><Test>

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.2.1.5 Protocol Bridge

Requirements concerning this category have not been identified yet.

3.2.1.6 Other Functional Requirements

In this section additional functional requirements are provided.

[REQ]

Identifier	REQ-14.01.04-TS-0001.0021
Requirement	The SWIM-TI Messaging shall allow data compression.
Title	Support of Data Compression Techniques
Status	<In Progress>
Rationale	The SWIM-TI Messaging is used to enable data exchanges among geographical distributed entities (wide area deployment). Taking into account this deployment view, performance bottlenecks due to sizing aspects (e.g. number of entities, exchange rate, data size, etc.) could impact the overall messaging performance thus it is required to allow data compression techniques. Data compression can be realised in more than 1 one way and at distinct levels. For example, the ATM application layer can provide a compressed payload to the SWIM-TI. The SWIM-TI itself can also provide data compression. The SWIM-TI shall not prevent the use of data compression inside the SWIM-TI nor compression performed at the ATM application layer
Category	<Functional><Performance>
Validation Method	
Verification Method	<Review of Design><Analysis>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0032
Requirement	The SWIM-TI Messaging shall allow to configure data compression on a policy basis.
Title	Support of Data Compression Configurability
Status	<In Progress>
Rationale	According to REQ-14.01.04-TS-0001.0021, the SWIM-TI Messaging should support data compression techniques. Taking into account that this

	capability is used in different contexts and scenarios having different requirements, it is needed that, when supported, the data compression is policy based. For Step 1 the minimum configurability level is enable/disable data compression. Compression algorithm may or may not only be used for bulk data distributions (e.g. Push messaging or Pub/Sub) to reduce the impact on performance. A message size multiplies by encryption security measures. This triggers in turn the need for a compression algorithm for message exchange even for non-bulk data. It will be needed to compress SOAP messages that are larger than a threshold (by a configurable parameter with a default value); for smaller messages the overhead by compression (i.e. CPU time spent) would be too large. (Refer to Eurocontrol 14.01.02 D04 Ground/Ground Technology & Service Option Survey Step2 for some examples).
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-4	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0041
Requirement	The SWIM-TI Messaging shall support reliable transport layers.
Title	Support of Reliable Transport Layers
Status	<In Progress>
Rationale	The SWIM-TI Messaging is used to enable data exchanges among geographical distributed entities (wide area deployment). Taking into account this and also that in this deployment data loss at transport layer may occur, it is required to support reliable technologies at transport layer. The reliable transports supported in Step 1 are TCP (Transmission Control Protocol) and DDSI (DDS Interoperability Wire Protocol). The DDSI transport is used only in the Blue Profile).
Category	<Functional><Performance>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-5	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0051
Requirement	The SWIM-TI Messaging shall allow to configure Quality of Service policies.
Title	Support of QoS Policies Configurability
Status	<In Progress>
Rationale	The SWIM-TI Messaging is used to enable the exchanging of different types of data with different QoS requirements. For instance, for some data could be required a reliable delivery whereas the best-effort delivery could be enough for other types of data. Other examples: . The type of keys to use – shared secret key or public key - , the strength of the keys to use – number of bits -, and the algorithms to use to sign may need to be configured differently depending on the type of service . Retries may have to be performed in case of timeout in which case the number of retries, the timeout values, etc need to be configured differently depending on the type service Taking into account these considerations, it is required that the SWIM-TI Messaging shall allow to configure properly such QoSs.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-6	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0091

Requirement	The SWIM-TI Messaging shall allow durable subscriptions.
Title	Support of Durable Subscription functionality
Status	<In Progress>
Rationale	The Messaging supports a durable subscription mechanisms. A durable subscription mechanism saves messages for an inactive subscriber and after the disconnected period, it delivers these saved messages when the subscriber is reconnected. In this way, a subscriber will not lose any messages which arrive while it was disconnected. Note that it has no effect on the behaviour of the subscriber or the messaging system while the subscriber is connected. A connected subscriber acts the same whether its subscription is durable or non-durable. The difference is in how the messaging behaves when the subscriber is disconnected. Some typical use cases for durable subscriptions include - restart of publisher without requiring subscribers to re-subscribe; - restart of a subscriber without re-subscription to avoid multiple subscriptions
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-11	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-050	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0141
Requirement	The SWIM-TI Messaging shall provide the following metrics for the Publish/Subscribe pattern: + Number of data publications + Time of the last data publication + Number of failed data publications + Number of received data publications + Time of the last received data publication + Number of missing data publications
Title	Statistic Metrics provided for Publish-Subscribe pattern.
Status	<In Progress>
Rationale	The SWIM-TI Messaging supports several MEPs (Message Exchange Patterns) including Publish-Subscribe.

	It represents one of the most important capabilities and, in order to support monitoring activities, it is needed that it supports the reporting of such metrics.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-17	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0151
Requirement	The SWIM-TI Messaging shall provide the following metrics for the Request/Response pattern: + Number of Requests + Time of the Last Request + Number of Failed Requests + Number of Successful Requests + Maximum Response Time + Last Response Time
Title	Statistic Metrics provided for the Request-Response pattern
Status	<In Progress>
Rationale	The SWIM-TI Messaging supports several MEPs (Message Exchange Patterns) including Request-Response. It represents one of the most important capabilities and, in order to support monitoring activities, it is needed that it supports the reporting of such metrics.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>

<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-18	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0231
Requirement	The SWIM-TI Messaging shall allow a service provider to retrieve any request identification attached to the request.
Title	Retrieve request identification, if any.
Status	<In Progress>
Rationale	When a service provider is willing to detect request retries, it shall be capable of retrieving any request identification that is attached to the incoming request.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0340
Requirement	The SWIM-TI Messaging shall enable prioritization between messages and prioritization between messages and other traffic distributed on the same underlying communication network.
Title	SWIM-TI Messaging support of messages and other traffic prioritization
Status	<In Progress>
Rationale	To support various types of services over the same Purple Profile data link. This requirement has been derived from A/G requirement REQ-A15-0010.0011 identified in SWIM Action Plan A15.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	09.19-D03-330	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0680
Requirement	SWIM-TI Messaging PSPULL-MEP shall provide subscription persistency across reboot and crash of the entity managing the subscriptions.
Title	PSPULL-MEP Subscription persistency support
Status	<In Progress>
Rationale	It is much more efficient and reliable to make the entity managing the subscriptions responsible for the persistence, than to have every subscriber maintain a complex infrastructure to ensure its subscription on any topic anywhere is not lost
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>		N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0690
Requirement	SWIM-TI Messaging PSPUSH-MEP shall provide subscription persistency across reboot and crash of the entity managing the subscriptions.
Title	PSPUSH-MEP Subscription persistency support
Status	<In Progress>
Rationale	It is much more efficient and reliable to make the entity managing the subscriptions responsible for the persistence, than to have every subscriber maintain a complex infrastructure to ensure its subscription on any topic anywhere is not lost
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0700
Requirement	SWIM-TI Messaging PSPULL-MEP shall provide message persistency across reboot and crash of the entity managing the subscriptions.
Title	PSPULL-MEP Message persistency support
Status	<In Progress>
Rationale	It is much more efficient and reliable to make the entity managing the push or the entity managing the pullpoint responsible for the message persistence, than to have both subscriber and publisher maintain a complex infrastructure to detect message loss and to allow for recuperation.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0001.0710
Requirement	SWIM-TI Messaging PSPUSH-MEP shall provide message persistency across reboot and crash of the entity managing the subscriptions.
Title	PSPUSH-MEP Message persistency support
Status	<In Progress>
Rationale	It is much more efficient and reliable to make the entity managing the push or the entity managing the pullpoint responsible for the message persistence,

	than to have both subscriber and publisher maintain a complex infrastructure to detect message loss and to allow for recuperation.
Category	<Functional>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.2.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.2.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.2.3.1 Time behaviour, §3.2.3.2 Resource utilization and §3.2.3.3 Capacity.

3.2.3.1 Time behaviour

This section provides requirements concerning SWIM-TI MSG time behaviour.

[REQ]

Identifier	REQ-14.01.04-TS-0201.0130
Requirement	All the SWIM-TI MEP of the Request/Reply category shall support a transit-time constraint for a one-way message between external interfaces in the SWIM Node as follows. + Measurements: - 95% of the messages <= 2 s - 98% of the messages <= 3 s + Measurement conditions: - integrity and confidentiality at transport level - no encryption and no signing at message level - Session setup, no session reuse - Message size <= 1 MB

	- Full load, no overload - no on the fly compression
Title	SWIM-TI Request/Response MEP performance core without reuse
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Note that this specification only scopes a single SWIM-Node. This specification does not encompass other SWIM-Nodes, the Communications Infrastructure, functionality elsewhere in the SWIM-TI, ATM Enabled specific application or overall federated ATM SoS. Session setup of a connection between communicating parties with integrity and confidentiality at transport requires extra processing due to the session setup and the establishment of the security controls at the transport level. These specifications suit use cases that are not dependent on fast processing time and that are not dependent on high predictability of the processing time at the service provider side at session setup. Note: this is a requirement concerning Efficiency sub-characteristic of Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0201.0140
Requirement	All the SWIM-TI MEP of the Request/Reply category shall support a transit-time constraint for a one-way message between external interfaces in the SWIM Node as follows. + Measurements: - 95% of the messages <= 1 s - 99,5% of the messages <= 2 s + Measurement conditions: - integrity and confidentiality at transport level - no encryption and no signing at message level - Session setup, no session reuse - Message size <= 1 MB - Full load, no overload - no on the fly compression
Title	SWIM-TI Request/Response MEP performance advanced without reuse
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Note that this specification only scopes a single SWIM-Node. This specification

	does not encompass other SWIM-Nodes, the Communications Infrastructure, functionality elsewhere in the SWIM-TI, ATM Enabled specific application or overall federated ATM SoS. Session setup of a connection between communicating parties with integrity and confidentiality at transport level requires extra processing due to the session setup and the establishment of the security controls at the transport level. These specifications suit use cases that are dependent on fast processing time and on high predictability of the processing time at the service provider side at session setup. Note: this is a requirement concerning Efficiency sub-characteristic of Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0201.0150
Requirement	All the SWIM-TI MEP of the Request/Reply category shall support a transit-time constraint for a one-way message between external interfaces in the SWIM Node as follows. + Measurements: - 95% of the messages <= 0,5 s - 98% of the messages <= 1 s + Measurement conditions: - integrity and confidentiality at transport level - no encryption and no signing at message level - session reuse - Message size <= 1 MB - Full load, no overload - no on the fly compression
Title	SWIM-TI Request/Response MEP performance core with reuse
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Note that this specification only scopes a single SWIM-Node. This specification does not encompass other SWIM-Nodes, the Communications Infrastructure, functionality elsewhere in the SWIM-TI, ATM Enabled specific application or overall federated ATM SoS. Session reuse of a connection between communicating parties with integrity

	and confidentiality at transport requires less processing compared to session setup. These specifications suit use cases that are not dependent on fast processing time and that are not dependent on high predictability of the processing time at the service provider side at session reuse. Note: this is a requirement concerning Efficiency sub-characteristic of Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0201.0160
Requirement	All the SWIM-TI MEP of the Request/Reply category shall support a transit-time constraint for a one-way message between external interfaces in the SWIM Node as follows. + Measurements: - 95% of the messages <= 0,3 s - 99,5% of the messages <= 1 s + Measurement conditions: - integrity and confidentiality at transport level - no encryption and no signing at message level - session reuse - Message size <= 1 MB - Full load, no overload - no on the fly compression
Title	SWIM-TI Request/Response MEP performance advanced with reuse
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Note that this specification only scopes a single SWIM-Node. This specification does not encompass other SWIM-Nodes, the Communications Infrastructure, functionality elsewhere in the SWIM-TI, ATM Enabled specific application or overall federated ATM SoS. Session reuse of a connection between communicating parties with integrity and confidentiality at transport requires less processing compared to session setup. These specifications suit use cases that are dependent on fast processing time and on high predictability of the processing time at the service provider side at session reuse. Note: this is a requirement concerning Efficiency sub-characteristic of

	Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0201.0170
Requirement	The SWIM-TI PSPUSH-MEP shall be able to distribute and notify as follows. + Measurements: - 200 notifications per minute sent by the broker + Measurement conditions: - no integrity and confidentiality at transport level - no encryption and no signing at message level - Session setup, no session reuse - Message size <= 1 MB - Full load, no overload - no on the fly compression - any number of subscribers may be offline - a network throughput >= 50 MB/s
Title	Publish/Subscribe MEP notification performances
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. In some use cases the combined effect of the number of subscribers, the number of events and the nature of the event, will not require a high level of fair distribution in time of arrival of the notification between the first and last subscriber nor a high throughput to avoid queuing and starvation. Note: this is a requirement concerning Efficiency sub-characteristic of Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0201.0180
Requirement	The SWIM-TI PSPUSH-MEP shall be able to distribute and notify as follows. + Measurements: - 2000 notifications per minute sent by the broker + Measurement conditions: - no integrity and confidentiality at transport level - no encryption and no signing at message level - Session setup, no session reuse - Message size <= 1 MB - Full load, no overload - no on the fly compression - any number of subscribers may be offline - a network throughput >= 50 MB/s
Title	Publish/Subscribe MEP notification performances
Status	<In Progress>
Rationale	The requirement is expressed in a specific form as documented in 14.01.04 Requirements Guidelines document. Assuming 4000 active airlines in Europe of which half (2000) are subscribed to events that have a direct operational impact in the network. In order to ensure timely and fair delivery to all subscribers it should be possible to deliver a single event to up to 2000 subscribers within 1 minute. This time window also ensure that queuing and starvation are avoided leading to non timely delivery. Note: this is a requirement concerning Efficiency sub-characteristic of Performance.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

3.2.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.2.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.2.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.2.4.1 Confidentiality, §3.2.4.2 Integrity, §3.2.4.3 Non-repudiation, §3.2.4.4 Accountability and §3.2.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.2.4.6) is provided for safety requirements.

3.2.4.1 Confidentiality

[REQ]

Identifier	REQ-14.01.04-TS-0401.0020
Requirement	Confidentiality shall be provided through encryption at message level.
Title	Confidentiality through message level encryption
Status	<In Progress>
Rationale	Encryption at message level serves as a tool supporting confidentiality.. Note: this is a requirement concerning Confidentiality sub-characteristic of Security. Note: The SWIM-TI Messaging will use the SWIM-TI Security to realise the encryption and decryption.
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.2.4.2 Integrity

Requirements concerning this category have not been identified yet.

3.2.4.3 Non-repudiation

[REQ]

Identifier	REQ-14.01.04-TS-0401.0010
Requirement	Non-repudiation and authenticity shall be supported through electronic signing at message level.

Title	Non-repudiation and authenticity through electronic signing
Status	<In Progress>
Rationale	Electronic message signing serves as a tool supporting non-repudiation. The electronic signature can be used to authenticate the originator. Note: this is a requirement concerning Non-repudiation sub-characteristic of Security. Note: The SWIM-TI Messaging will use the SWIM-TI Security to realise the digital signature creation and verification.
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.2.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.2.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.2.4.6 Safety

3.2.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.2.5.1 Modularity, §3.2.5.2 Reusability, §3.2.5.3 Analysability, §3.2.5.4 Modifiability and §3.2.5.5 Testability.

3.2.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.2.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.2.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.2.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.2.5.5 Testability

Requirements concerning this category have not been identified yet.

3.2.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.2.6.1 Maturity, §3.2.6.2 Availability, §3.2.6.3 Fault tolerance and §3.2.6.4 Recoverability.

3.2.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.2.6.2 Availability

Requirements concerning this category have not been identified yet.

3.2.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.2.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.2.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.2.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.2.8.1 Co-existence and §3.2.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.2.8.3 Installability and §3.2.8.4 Replaceability).

3.2.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.2.8.2 Interoperability

Requirements concerning this category have not been identified yet.

3.2.8.3 Installability

Requirements concerning this category have not been identified yet.

3.2.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.2.9 Functional block Interface Requirements

3.2.9.1 External Service Interfaces

3.2.9.1.1 Overview

The Yellow Profile is explicitly targeted at providing interoperability between ATM specific service consumer and providers using standards that qualify under the term Web Services.

Whichever form of Web Services is used, the SWIM-TI will always have to provide a minimum of integrity and authenticity in the scope of the interoperability that it provides to the ATM specific service consumers and providers independent of security controls that may exist at the level of the ATM specific services themselves.

The SWIM-TI may rely on the Communications Infrastructure to provide a security control.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0351
Requirement	Every message that flows through the SWIM TI via an external service interface between a service consumer and a service provider and vice versa shall be protected by a security control that provides integrity.
Title	Integrity is mandatory for external service Interface
Status	<In Progress>
Rationale	It must be possible to verify the message integrity to detect integrity violation by for instance corruption or malicious act during transit in the SWIM-TI. The quality of the integrity will depend on the placement (e.g. transport level or message level), the type (e.g. algorithms and keys used) and the number of such security controls
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0352
Requirement	Every message that flows through the SWIM TI via an external service interface between a service consumer and a service provider and vice versa shall be protected by a security control that provides authenticity.
Title	Authenticity is mandatory for external service Interface
Status	<In Progress>
Rationale	It must be possible to verify the authenticity of the producer of a message, the receiver of a message or both to detect authenticity violation by for instance spoofing. The quality of the authenticity will depend on the placement (e.g. transport level or message level), the type (e.g. user password, algorithms and keys used, replay protection) and the number of such security controls
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

The supported number of variations is kept to a minimum when the security mechanisms cover and support the variations of the 3 main structuring elements of security.

Scope	User Pwd	X.509	SAML	SOAP1.1	SOAP1.2
Transport		X		REQ-14.01.04-TS-0901.0304	REQ-14.01.04-TS-0901.0305
Message + Transport	X			REQ-14.01.04-TS-0901.0306	REQ-14.01.04-TS-0901.0308
Message		X		REQ-14.01.04-TS-0901.0307	REQ-14.01.04-TS-0901.0309
Message + Federated		X	X	REQ-14.01.04-TS-0901.0317	REQ-14.01.04-TS-0901.0318

The above table provides an overview of the all the SOAP X security variations in the Yellow Profile.

The first three first rows represent the variations that are part of the “core” part of the Yellow Profile.

As the provider of a service may do so, not using the SOAP based subset of Web Services, none of the binding specifications in the above table is mandatory. However when one or more or these bindings are used, then the service must be offered by the provider through both a SOAP1.1 binding as well as the correlated equivalent SOAP1.2 binding.

A service provider who conforms to the Yellow Profile “core” may use any number including zero, of security variations, provided that the provider always offers the service both in the SOAP 1.1 version and in the SOAP1.2 version,

A consumer who conforms to the Yellow Profile “core” will be able to consume a service bound to each of these variations either in the SOAP1.1 version or in the SOAP1.2 version.

The last row represents the variations that are part of the optional “security+” part of the Yellow Profile.

A service provider who conforms to the Yellow Profile “security+” may use the federated security variations, provided that the provider always offers the service both in the SOAP 1.1 version and in the SOAP1.2 version,

A consumer who conforms to the Yellow Profile “security+” will be able to consume a service bound to the federated security variation either in the SOAP1.1 version or in the SOAP1.2 version.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0353
Requirement	A SOAP based service shall be provided using equivalent bindings of which one is using SOAP1.1 and the other is using SOAP1.2 according following equivalence: - REQ-14.01.04-TS-0901.0304 and REQ-14.01.04-TS-0901.0305 are

	equivalent - REQ-14.01.04-TS-0901.0306 and REQ-14.01.04-TS-0901.0308 are equivalent - REQ-14.01.04-TS-0901.0307 and REQ-14.01.04-TS-0901.0309 equivalent - REQ-14.01.04-TS-0901.0317 and REQ-14.01.04-TS-0901.0318 are equivalent
Title	Yellow Profile requires SOAP1.1 and SOAP1.2 binding
Status	<In Progress>
Rationale	Consumer friendliness requires that a consumer can choose to use a SOAP1.1 based stack or a SOAP1.2 based stack for every service.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0304	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0305	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0306	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0307	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0308	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0309	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0317	N/A
<APPLIES_TO>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0318	N/A

3.2.9.1.2 Technical configuration: the requirements

3.2.9.1.2.1 The bindings

The YP profile supports 2 configurations that do not fall in the SOAP-based category. These configurations are aligned with existing uses as well as potential uses.

The first binding provides the simplest and most flexible method to communicate any form of data.

It does not impose nor provide a particular format to describe the operations and the data in a way that can be handled by a machine. The services that are offered through this binding have to provide a description of the operations and the data but it can vary from XSD to a textual description.

The second form provides a lightweight method to provide services and to access services.

This binding is similar to the first but more strict than the first as it provides and imposes a description of the data in a way that can be handled by a machine, i.e. XSD.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0301
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: HTTPS GET/POST over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding: - HTTP GET: request URL encoding, response IANA registered MIME Media Types, protocol specific extensions and vendor proprietary extensions - HTTP POST: request application/x-www-form-urlencoded or text/xml encoding, response IANA registered MIME Media Types, protocol specific extensions and vendor proprietary extensions + Security - Confidentiality: transport - Integrity: transport - Authenticity: transport mutual - Authorization: transport - Non-repudiation: none + Contract: - formalism of contract description: not standardised - minimum: not applicable - reference: ISRM
Title	Generic interface Binding. Over HTTPS GET/POST over TCP.
Status	<In Progress>
Rationale	This type of binding is already provided by NM B2B for retrieving zipped AirspaceStructure documents. The set of OGC protocols WMS, WFS, WCS and WPS use HTTP GET and POST methods. Encodings are not limited to standardized MIME types but also use vendor specific types from OGC.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0154	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0173	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0174	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0175	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0176	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0901.0303
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: Plain Old XML (POX) over HTTPS POST over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding: - HTTP POST: application/xml; charset=UTF-8 + Security: - Confidentiality: transport - Integrity: transport - Authenticity: transport mutual - Authorization: transport - Non-repudiation: none + Contract:: - existing: described in XSD - future: described in XSD + Contract: - formalism of contract description: described in XSD - minimum: not applicable - reference: ISRM
Title	Generic interface Binding. Plain Old XML (POX) over HTTPS POST over TCP.
Status	<In Progress>
Rationale	This type of binding is already provided by NM B2B as alternative for a SOAP encapsulation. All security controls are located at transport level
Category	<Interface>
Validation Method	

Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0146	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0147	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0153	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0154	N/A
<SPECIALIZES>	<ATMS Requirement>	REQ-14.01.04-TS-0901.0301	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

Two Identical bindings, one for a SOAP 1.1 based messaging protocol and one for a SOAP1.2 based messaging protocol.

These bindings situate all the security controls at the transport level.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0304
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.1 over HTTPS POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security:

	- Confidentiality: transport - Integrity: transport - Authenticity: transport mutual - Authorization: transport - Non-repudiation: none + 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 + Interoperability: WS-I Basic Profile 1.2
Title	Generic interface Binding. SOAP 1.1 over HTTPS POST over TCP.
Status	<In Progress>
Rationale	This type of binding is already provided by NM B2B. The binding is targeted at SOAP 1.1. All the security controls are provided at the transport level.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0121	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0124	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0128	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0129	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>

<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0901.0305
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.2 over HTTPS POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security: - Confidentiality: transport - Integrity: transport - Authenticity: transport mutual - Authorization: transport - Non-repudiation: none + 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 + Interoperability: WS-I Basic Profile 2.0
Title	Generic interface Binding. SOAP 1.2 over HTTPS POST over TCP.
Status	<In Progress>
Rationale	Equivalent to REQ-14.01.04-TS-0901.0304 but for SOAP 1.2. All the security controls are provided at the transport level.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0122	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0123	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0126	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0130	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

Two identical bindings, one for a SOAP 1.1 based messaging protocol and one for a SOAP1.2 based messaging protocol.

The security controls are spread over multiple levels. The consumer authentication is performed at message level and uses a simple mechanism based on user and password. To avoid easy comprise of the credentials, confidentiality is required. The confidentiality is provided by the transport level.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0306
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security: - Confidentiality: transport - Integrity: transport - Authenticity: transport server and message client - Authorization: transport and message - Non-repudiation: none + 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 + Interoperability: WS-I Basic Profile 1.2, WSI Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.1 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP.
Status	<In Progress>
Rationale	This binding allows simple user and password authentication at message level while relying on transport level to provide confidentiality of the credentials
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0121	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0124	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0128	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0129	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0131	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0150	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0901.0308
Requirement	Generic service instantiation shall be supported on the following interface

	binding. + Protocol stack: SOAP 1.2 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security - Confidentiality: transport - Integrity: transport - Authenticity: transport server and message client - Authorization: transport - Non-repudiation: none + 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 + Interoperability: WS-I Basic Profile 2.0, WSI Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.2 with WS-Security 1.1 and UsernameToken 1.1 over HTTPS POST over TCP.
Status	<In Progress>
Rationale	Equivalent to REQ-14.01.04-TS-0901.0306 but for SOAP 1.2. This type of binding is already provided by FAA FNS-DNS
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0110	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0112	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0113	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0114	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0116	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0122	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0123	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0126	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0130	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0131	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0150	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0186	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0029	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

Two identical bindings, one for a SOAP 1.1 based messaging protocol and one for a SOAP1.2 based messaging protocol.

These bindings place the security controls mostly at message level. The consumer authentication is performed using WS-Security X.509 Certificate Token Profile 1.0 or WS-Security X.509 Certificate Token Profile 1.1. This method of providing credentials does not require confidentiality. If confidentiality is required, it is to be provided by the communications network.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0307
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.1 with WS-Security 1.1 and WSSE X.509 Certificate Token Profile 1.0 or WSSE X.509 Certificate Token Profile 1.1 over HTTP POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security: - Confidentiality: optionally network - Integrity: message - Authenticity: message - Authorization: message mutual - Non-repudiation: message + 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 + Interoperability: WS-I Basic Profile 1.2, WSI Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.1 with WS-Security 1.1 and WSSE X.509 Certificate Token Profile 1.0 or WSSE X.509 Certificate Token Profile 1.1 over HTTP POST over TCP.
Status	<In Progress>
Rationale	This type of binding is already provided by EAD B2B Security controls are mainly based on message level
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0121	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0124	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0128	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0129	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0131	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0149	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0151	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0186	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0901.0309
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.2 with WS-Security 1.1 and WSSE X.509 Certificate Token Profile 1.0 or WSSE X.509 Certificate Token Profile 1.1 over HTTP

	POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security - Confidentiality: optionally network - Integrity: message - Authenticity: message mutual - Authorization: message - Non-repudiation: message + 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 + Interoperability: WS-I Basic Profile 2.0, WSI Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.2 with WSSE X.509 Certificate Token Profile 1.0 or WS-Security 1.1 and WSSE X.509 Certificate Token Profile 1.1 over HTTP POST over TCP.
Status	<In Progress>
Rationale	Equivalent to REQ-14.01.04-TS-0901.0307 but for SOAP 1.2.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0122	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0123	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0126	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0130	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0131	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0149	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0151	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0186	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

Two identical bindings, one for a SOAP 1.1 based messaging protocol and one for a SOAP1.2 based messaging protocol.

These bindings provide for brokered identity management and place the security controls mostly at message level. The consumer authentication is performed using WS-Security X.509 Certificate Token Profile 1.0 or WS-Security SAML Token Profile 1.1. This method of providing credentials does not require confidentiality. If confidentiality is required, it is to be provided by the communications network.

This binding is targeted at providing advanced security features.

[REQ]

Identifier	REQ-14.01.04-TS-0901.0317
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.1 with WS-Security 1.1 and WSSE X.509 Certificate Token Profile 1.1 and/or WSSE SAML Token Profile 1.1 combined with any of combination of WS-Trust 1.4, WS-Federation 1.2 over HTTP POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - Text encoding - Binary encoding: MTOM + Security - Confidentiality: optionally network - Integrity: message - Authenticity: message mutual - Authorization: message - Non-repudiation: message + 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 + Interoperability: WS-I Basic Profile 1.2, WSI- Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.1 with WS-Security 1.1, WS-Trust 1.4, WS-Federation 1.2, and WSSE X.509 Certificate Token Profile 1.1 and/or WSSE SAML Token Profile 1.1 over HTTP POST over TCP.
Status	<In Progress>

Rationale	This binding provides advanced security features and is meant to be included in the "Security+" plus part of the YP
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0121	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0124	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0128	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0129	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0131	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0138	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0141	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0142	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0151	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0177	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0186	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0901.0318
Requirement	Generic service instantiation shall be supported on the following interface binding. + Protocol stack: SOAP 1.2 with WS-Security 1.1 and WSSE SAML Token Profile 1.1 combined and/or WSSE SAML Token Profile 1.1 with any of WS-Trust 1.4, WS-Federation 1.2 over HTTP POST over TCP. + MEP: SRR-MEP, PSPUSH-MEP, PSPULL-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase

	+ Encoding. - Text encoding - Binary encoding: MTOM + Security - Confidentiality: optionally network - Integrity: message - Authenticity: message mutual - Authorization: message - Non-repudiation: message + 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 + Interoperability: WS-I Basic Profile 2.0, WSI- Basic Security Profile 1.1
Title	Generic interface Binding. SOAP 1.2 with WS-Security 1.1, WS-Trust 1.4, WS-Federation 1.2, and WSSE X.509 Certificate Token Profile 1.1 and/or WSSE SAML Token Profile 1.1 over HTTP POST over TCP.
Status	<In Progress>
Rationale	Equivalent to REQ-14.01.04-TS-0901.0317 but for SAML Token Profile 1.1
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-51b	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0350	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0400	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0410	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0500	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0520	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0540	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0550	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0720	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0730	<Full>
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0101	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0111	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0115	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0122	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0123	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0125	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0126	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0127	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0130	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0132	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0133	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0134	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0136	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0137	N/A

<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0138	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0141	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0142	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0152	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0177	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0186	N/A
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0420	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0001.0430	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0240	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0055	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0682	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-14.01.04-TS-0002.0121	<Full>

3.2.9.1.2.2 Other technical configuration requirements

[REQ]

Identifier	REQ-14.01.04-TS-0901.0401
Requirement	In order to enable HTTP/1.1 Content Compression the following headers shall be supported. . from the server to the client: Content-Encoding: {deflate|gzip} . from the client to the server: Accept-Encoding: {gzip|deflate}. A Consumer shall be able to deal with a Provider that does not recognize the request to apply compression.
Title	HTTP/1.1 Content Compression
Status	<In Progress>
Rationale	HTTP compression performs on the fly compression. The compression can only be requested by the client. The server can ignore the request by the client and return non-compressed data.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0402
Requirement	HTTP/1.1 Transfer-Encoding chunked shall be supported.
Title	HTTP/1.1 Transfer-Encoding chunked
Status	<In Progress>
Rationale	The sender of a message may not know in advance the length of the message

	that will be sent. The HTTP/1.1 protocol provides for this mechanism.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0403
Requirement	Support for SSLv3 shall only be used as a fallback for any TLS.
Title	SSLv3 shall only be used as a fallback for any TLS
Status	<In Progress>
Rationale	SSLv3 shall never be offered as the only option for providing security at the transport layer. A client and a server shall always provide and propose one or more versions of the TLS protocol and will only be allowed to fallback on SSLv3 if no TLS match can be found.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0404
Requirement	A holder of key shall digitally sign a message when a X.509 Token or SAML Token is used for message level authentication.
Title	Holder of key must sign message to authenticate at message level
Status	<In Progress>
Rationale	In case of message level authentication, a X.509 Token or SAML Token can be sent with the message. In addition to sending the Token, the message must be signed with the key that must remain secret or private and that is known by the sender.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0390
Requirement	The bindings based on SOAP shall be composable with WS-ReliableMessaging
Title	WS-ReliableMessaging applicability
Status	<In Progress>
Rationale	WS-ReliableMessaging allows reliable transfer of messages between nodes in the presence of software component, system, or network failures.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0181	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0182	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0901.0406
Requirement	The bindings based on SOAP shall be composable with WS-SecureConversation
Title	WS-SecureConversation applicability
Status	<In Progress>
Rationale	Establishment of a Security Session at message level through WS-SecureConversation may reduce the performance overhead of message level security in case many messages are exchanged securely. Establishment of a Security Session at message level through WS-SecureConversation allows independence of equivalent transport level functionality.
Category	<Interface>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>		<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<INCLUDES>	<ATMS Requirement>	REQ-14.01.04-TS-0811.0139	N/A

3.2.9.2 Internal Service Interfaces

3.2.9.2.1 Technical Configuration

3.2.9.2.1.1 The bindings

Requirement Identifier	Requirement	Include Requirement	Requirement Source
REQ-14.01.04-TS-0901.0329	LDAP services shall be instantiated using the following binding. LDAPv3 over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: none - Integrity: none - Authenticity: transport - Authorization: transport - Non-repudiation: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: LDAPv3 + Interoperability: none	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0156 REQ-14.01.04-TS-0811.0157 REQ-14.01.04-TS-0811.0158 REQ-14.01.04-TS-0811.0159	D41-002 §3.9.2
REQ-14.01.04-TS-0901.0330	LDAP services shall be instantiated using the following binding. LDAPv3 over SSLv3/TLS over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: transport - Integrity: transport - Authenticity: to be defined (there multiple ways) - Authorization: transport - Non-repudiation: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: LDAPv3 + Interoperability: none	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0110 REQ-14.01.04-TS-0811.0111 REQ-14.01.04-TS-0811.0112 REQ-14.01.04-TS-0811.0113 REQ-14.01.04-TS-0811.0114 REQ-14.01.04-TS-0811.0156 REQ-14.01.04-TS-0811.0157 REQ-14.01.04-TS-0811.0158 REQ-14.01.04-TS-0811.0159	D41-002 §3.9.2

REQ-14.01.04-TS-0901.0331	OCSP services shall be instantiated using the following binding. OCSP over HTTP over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: OCSP + Interoperability: none	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0115 REQ-14.01.04-TS-0811.0155	D41-002 §3.9.2
REQ-14.01.04-TS-0901.0332	SCVP services shall be instantiated using the following binding. SCVP over HTTP over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: SCVP + Interoperability: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: LDAPv3 + Interoperability: none	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0115 REQ-14.01.04-TS-0811.0160	D41-002 §3.9.2
REQ-14.01.04-TS-0901.0333	SCVP services shall be instantiated using the following	REQ-14.01.04-TS-0811.0101	D41-002 §3.9.2

	binding. SCVP over HTTPS over TCP. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: transport - Integrity: transport - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: - formalism of contract description: as defined per standard - minimum: not applicable - reference: SCVP + Interoperability: none	REQ-14.01.04-TS-0811.0110 REQ-14.01.04-TS-0811.0111 REQ-14.01.04-TS-0811.0112 REQ-14.01.04-TS-0811.0113 REQ-14.01.04-TS-0811.0114 REQ-14.01.04-TS-0811.0115 REQ-14.01.04-TS-0811.0116 REQ-14.01.04-TS-0811.0160	
REQ-14.01.04-TS-0901.0327	UDDI services shall be instantiated using the following binding. SOAP 1.1 over HTTP POST over TCP for UDDI. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase + Encoding. - restricted encoding as defined per standard + Security: - Confidentiality: none - Integrity: none - Authenticity: none - Authorization: none - Non-repudiation: none + Contract: - formalism of contract description: WSDL 1.1 - minimum: not applicable - reference: UDDIv3 . Interoperability: WS-I Basic Profile 1.2	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0115 REQ-14.01.04-TS-0811.0118 REQ-14.01.04-TS-0811.0121 REQ-14.01.04-TS-0811.0125 REQ-14.01.04-TS-0811.0129	D41-004 §3.9.2
REQ-14.01.04-TS-0901.0328	UDDI services shall be instantiated using the following binding. SOAP 1.1 over HTTPS POST over TCP for UDDI. + MEP: SRR-MEP + Fault handling: the service shall be able to determine the content of the HTTP status code and HTTP reason phrase	REQ-14.01.04-TS-0811.0101 REQ-14.01.04-TS-0811.0110 REQ-14.01.04-TS-0811.0111 REQ-14.01.04-TS-0811.0112 REQ-14.01.04-TS-0811.0113	D41-004 §3.9.2

	+ Encoding. - restricted encoding as defined per standard	REQ-14.01.04-TS-0811.0114 REQ-14.01.04-TS-0811.0115
	+ Security: - Confidentiality: transport - Integrity: transport - Authenticity: transport mutual - Authorization: transport - Non-repudiation: none	REQ-14.01.04-TS-0811.0116 REQ-14.01.04-TS-0811.0118 REQ-14.01.04-TS-0811.0121
	+ Contract: - formalism of contract description: WSDL 1.1 - minimum: not applicable - reference: UDDIv3	REQ-14.01.04-TS-0811.0125 REQ-14.01.04-TS-0811.0129
	+ Interoperability: WS-I Basic Profile 1.2	

3.3 Security Functional Block Functional and non-Functional Requirements

This chapter provides the functional and non-functional requirements concerning the SWIM-TI Security. These requirements have been specified according to SWIM-TI Technical Use Case [11], [Appendix A], to 14.01.03.D33 [10] , 14.01.03.D34 [25] and to §2.6.1.

3.3.1 Capabilities

This section provides the functional requirements of the SWIM-TI Security as introduced and grouped in §2.6.1.

3.3.1.1 Confidentiality Ensuring Requirements

This section specifies the SWIM-TI Security functional requirements concerning the Confidentiality Ensuring as described in §2. This consists mainly of requirements concerning confidentiality at message level and transport levels.

The following requirements concern SWIM-TI Security at all: they specify the cryptographic techniques and standards adopted and the two levels at which the confidentiality ensuring is applied.

[REQ]

Identifier	REQ-14.01.04-TS-0002.0200
Requirement	SWIM-TI Security shall provide support for confidentiality ensuring of information exchanged through the SWIM-TI.
Title	SWIM-TI Confidentiality Ensuring
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged information it is required to guarantee several security properties including confidentiality. This requirement is also derived from A/G requirement REQ-A15-0020.0003 identified in SWIM Action Plan A15.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0027
Requirement	SWIM-TI Security shall provide support for encryption and decryption techniques.
Title	SWIM Technical Infrastructure encryption and decryption support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality. Encryption and decryption are techniques enabling the expected security properties.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-2	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_049	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_050	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-250	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0029
Requirement	The SWIM-TI Security shall provide support for the use of encryption and decryption techniques at least at one of the following levels: + Message + Transport
Title	Support of Encryption and Decryption at several levels
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected through Communications infrastructure. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality. Encryption and decryption are techniques enabling the expected security properties. These techniques can be applied at different levels:

	▪ Message level: these kind of techniques are used to encrypt/decrypt the content (or a part of) of the message. For instance, in a SOAP based communication, only the SOAP body content (or part of) is encrypted/decrypted. ▪ Transport level: these kinds of techniques are used to encrypt/decrypt the complete transport communication. For instance, in a SOAP/HTTPS based communication the whole SOAP is encrypted/decrypted. It is important to notice that SWIM-TI Security provides only message and transport levels security whereas it may also rely on network level security as provided by the Communication Infrastructure. ▪ Network level: for instance IPSec can be used to be used to provide confidentiality, integrity and authenticity (mutual)
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_049	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_050	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0023
Requirement	SWIM-TI Security shall be able to provide, for a given information exchange, support for confidentiality ensuring+ Only at message level + Only at transport level + At both message and transport levels (two approaches used in combination).
Title	SWIM-TI Confidentiality Ensuring at Transport and Message levels
Status	<In Progress>
Rationale	SWIM-TI enables information exchange mainly according to the request-response and publish-subscribe MEPs. According to each MEP and taking into account information exchange security requirements, it could be required to apply message level or transport level encryption/decryption. As described in 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11] the two approaches have advantages and disadvantages and therefore they are applicable to specific cases. Channel Protection (refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11]) or transport level security, is applicable to point-to-point communications for which no specific intermediaries are foreseen (examples of intermediaries are data enrichment (METADATA) and service virtualization implemented trough Service Agent SOA design pattern. Message protection (refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11]) or message level security, is applicable to point-to-point (with or without intermediaries), one-to-many or many-to-many communications.

Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-2	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

The following set of requirements aim at specifying the Confidentiality Ensuring as it is described in §2.6.1 and in [11].

[REQ]

Identifier	REQ-14.01.04-TS-0002.0024
Requirement	SWIM-TI Confidentiality Ensuring shall provide support for XML Encryption based message level confidentiality.
Title	XML Encryption based SWIM-TI message level Confidentiality Ensuring
Status	<In Progress>
Rationale	XML Encryption is a widely adopted W3C specification that can be used to encrypt any kind of data within an XML document. SWIM-TI use XML Encryption to ensure message level confidentiality. To described that the choice is specified within the confidentiality policy. There is a requirement describing the structure of such policy
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0025
Requirement	SWIM-TI Security shall use Symmetric, Asymmetric and Hybrid encryption schemas to allow confidentiality ensuring
Title	Encryption Schemas for SWIM-TI Confidentiality Ensuring
Status	<In Progress>
Rationale	Symmetric, Asymmetric and Hybrid encryption schemas are widely adopted and they represent more appropriate solutions supporting Confidentiality Ensuring in different application contexts.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0026
Requirement	SWIM-TI Security shall use Triple DES, AES-128 and AES-256 encryption algorithms to allow confidentiality ensuring
Title	Encryption Algorithms for SWIM-TI Confidentiality Ensuring
Status	<In Progress>
Rationale	Triple DES, AES-128 and AES-256 encryption algorithms are widely adopted and they represent more appropriate solutions supporting Confidentiality Ensuring.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>

<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0210
Requirement	SWIM-TI Confidentiality Ensuring shall provide support for message level confidentiality ensuring.
Title	SWIM-TI Confidentiality Ensuring purpose
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure shall be used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS or Internet. Taking into account the overall context it is required to assure that sensitive data (ATM specific data and SWIM-TI internal ones) are only disclosed to intended recipients (confidentiality). Confidentiality Ensuring is one of the services provided by the SWIM-TI Security. These services breakdown is described in 14.01.04.D40 §2 according to P14.01.04 SWIM-TI Use Case UML model [11] and 14.01.03.D31.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0222
Requirement	SWIM-TI Confidentiality Ensuring shall allow to protect information exchanges by enforcing Confidentiality Ensuring Policy..
Title	Policy Based SWIM-TI Confidentiality Ensuring
Status	<In Progress>
Rationale	The need for Confidentiality Ensuring or not as well as the type of confidentiality ensuring can be determined according to a Confidentiality Ensuring Policy
Category	<Design><Functional><Security>
Validation Method	

Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0230
Requirement	SWIM-TI Confidentiality Ensuring Policy shall include the following information: A. If a given information exchange requires confidentiality assurance B. Which parts of such information have to be encrypted (applicable only to message level security) C. Which encryption schema has to be used (symmetric, asymmetric, hybrid) D. Which encryption algorithm has to be used E. If it is required to use a multipurpose key or a dedicated one F. Any other additional information about producer and recipients needed to support the Confidentiality Ensuring mechanisms
Title	SWIM-TI Confidentiality Ensuring Policy Structure
Status	<In Progress>
Rationale	This requirement allows a flexible use of the Confidentiality Ensuring that will perform its tasks according to the information defined in the policy: A. it allows to specify if the encryption/decryption are required B. for message level encryption, for such information it could be useful to encrypt on subparts of the messages (this improve the performance) whereas for other information it is required to encrypt all the message C. it allows to specify which encryption schema has to be used allowing to choice for each information exchange the solution that represents the right trade-off between performance and protection (asymmetric encryption requires more processing resources than symmetric encryption and the two approaches can be combined having an hybrid solution - e.g. symmetric schema is used to encrypt a message (or its parts) and then asymmetrically encrypt the shared key reducing the size of the data that is asymmetrically encrypted). D. it allows to specify for a given information exchange the encryption algorithm to be used E. it allows (according to "C") to specify which key has to be used and in particular if it is a multipurpose or a dedicated one. F. it allows to provide any other additional information needed to enforce the confidentiality assurance.

	Confidentiality Ensuring is one of the services provided by the SWIM-TI Security. These services breakdown is described in 14.01.04.D40 §2 and it has been defined according to P14.01.04 SWIM-TI Use Case UML model [11].
Category	<Design><Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0600
Requirement	SWIM-TI Confidentiality Ensuring shall use cryptographic keys managed by the PKI.
Title	SWIM-TI Confidentiality Ensuring cryptographic keys
Status	<In Progress>
Rationale	This requirement clarify where are managed (stored, created, etc.) cryptographic keys used to encrypt/decrypt data.
Category	<Functional><Interface><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0612
Requirement	SWIM-TI Audit shall allow to audit encryption and decryption attempts according to the specific Audit policy.
Title	Policy Based Encryption and Decryption attempts auditing
Status	<In Progress>
Rationale	Encryption and decryption attempts (successfully or not performed) can be audited or not according to a specific Audit policy.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.1.2 Information Origin Authentication Requirements

In this section are specified the SWIM-TI Security requirements concerning Information Origin Authentication as described in §2. This mainly consists of requirements concerning Information Origin Authentication Service at both message level and transport level.

The following requirements concern SWIM-TI Security at all: they specify the cryptographic techniques and standards adopted and the two levels at which the confidentiality ensuring is applied.

[REQ]

Identifier	REQ-14.01.04-TS-0002.0240
Requirement	SWIM-TI Security shall provide support to ensure information origin authentication (integrity and authenticity) of information exchanged through the SWIM-TI.
Title	SWIM-TI Information Origin Authentication
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged information it is required to guarantee several security properties including integrity (the information has not been altered while in transit) and authenticity (the information originated from the expected sender). This requirement is also derived from A/G requirements REQ-A15-0020.0001, REQ-A15-0020.0002 and REQ-A15-0020.0004 identified in

	SWIM Action Plan A15.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-230	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-240	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0055
Requirement	SWIM-TI Security shall be able to provide, for a given information exchange, support for origin authentication: + Only at message level + Only at transport level + Both at message and transport levels (two approaches used in combination).
Title	SWIM-TI Information Origin Authentication at Transport and Message levels
Status	<In Progress>
Rationale	SWIM-TI enables information exchange mainly according to the request-response and publish-subscribe MEPs. According to each MEP and taking into account information exchange security requirements, it could be required to apply message level or transport level signing. As described in 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11] the two approaches have advantages and disadvantages and therefore they are applicable to specific cases. Channel Protection (refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11]) or transport level security, is applicable to point-to-point communications for which no specific intermediaries are foreseen (examples of intermediaries are data enrichment (METADATA) and service virtualization implemented trough Service Agent SOA design pattern. Message protection (refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11]) or message level security, is applicable to point-to-point (with or without intermediaries), one-to-many or many-to-many communications.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

The following set of requirements aim at specifying the Information Origin Authentication as it is described in §2.6.1 and in [11].

[REQ]

Identifier	REQ-14.01.04-TS-0002.0251
Requirement	SWIM-TI Information Origin Authentication shall provide support for use of XML Signature to apply digital signature at message level.
Title	XML signature based SWIM-TI message level Information Origin Authentication Ensuring
Status	<In Progress>
Rationale	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0252
Requirement	SWIM-TI Information Origin Authentication shall use Symmetric, Asymmetric and Hybrid digital signature schema
Title	SWIM-TI Information Origin Authentication digital signature schema
Status	<In Progress>
Rationale	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0253
Requirement	SWIM-TI Information Origin Authentication shall provide SHA2 digest algorithm to perform message digest
Title	SWIM-TI Information Origin Authentication digest algorithm
Status	<In Progress>
Rationale	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0254
Requirement	SWIM-TI Information Origin Authentication shall provide HMAC as Message Authentication Codes algorithm
Title	SWIM-TI Information Origin Authentication message Authentication Codes algorithm
Status	<In Progress>
Rationale	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0255
Requirement	SWIM-TI Information Origin Authentication shall provide DSA-SHA2 and RSA-SHA2 as signature algorithms
Title	SWIM-TI Information Origin Authentication signature algorithms
Status	<In Progress>
Rationale	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0260
Requirement	SWIM-TI Information Origin Authentication shall provide support for message level information origin authentication .
Title	SWIM-TI Information Origin Authentication purpose
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure shall be used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS or Internet. Taking into account the overall context it is required to avoid sensitive data

	tampering (ATM specific data and SWIM-TI internal ones). Information Origin Authentication is one of the services provided by the SWIM-TI Security aiming at ensuring confidentiality (integrity and authenticity) at message level. These services breakdown is described in 14.01.04.D40 §2 according to P14.01.04 SWIM-TI Use Case UML model [11] and 14.01.03.D31.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-245	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D04-040	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0271
Requirement	SWIM-TI Information Origin Authentication shall allow to protect information exchanges according to the Information Origin Authentication Policy.
Title	Policy Based SWIM TI Information Origin Authentication
Status	<In Progress>
Rationale	The need for information origin authentication or not as well as the type of origin authentication can be determined according to a Information Origin Authentication Policy
Category	<Design><Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0280

Requirement	SWIM-TI Information Origin Authentication Policy shall include the following information: A. If a given information exchange requires Information Origin authentication B. Which digital signature schema has to be used (symmetric, asymmetric) C. Which digital signature algorithm has to be used D. If it is required to use a multipurpose key or a dedicated one E. Any other additional information about producer and recipients
Title	SWIM-TI Information Origin Authentication Policy Structure
Status	<In Progress>
Rationale	This requirement allows a flexible use of the Information Origin Authentication that will perform its tasks according to the information defined in the policy: A. it allows to specify if digital signature is required *B.* it allows to specify which signature schema has to be used allowing to choice for each information exchange the solution that represents the right trade-off between performance and protection (*Message Authentication Code (MAC) for symmetric signing and digital signature for asymmetric signing based on public/private key pair. Note that the symmetric signing does not fulfill non-repudiation needs because the shared secret used to sign the information is shared among several participants*). C. it allows to specify for a given information exchange the signing algorithm to be used D. it allows (according to "B") to specify which key has to be used and in particular if it is a multipurpose or a dedicated one. E. it allows to provide any other additional information needed to enforce the data origin assurance. Information Origin Authentication is one of the services provided by the SWIM-TI Security. These services breakdown is described in 14.01.04.D40 §2 and it has been defined according to P14.01.04 SWIM-TI Use Case UML model [11]
Category	<Design><Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0630
Requirement	SWIM-TI Information Origin Authentication shall use cryptographic keys

	managed by the PKI.
Title	SWIM-TI Information Origin Authentication cryptographic keys
Status	<In Progress>
Rationale	This requirement clarifies where the cryptographic keys used to sign data are managed (stored, created, etc.).
Category	<Functional><Interface><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D04-040	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0641
Requirement	SWIM-TI Audit shall audit message signature and signature validation attempts according to the specific audit policy
Title	Policy Based Message signature generation and validation attempts auditing
Status	<In Progress>
Rationale	According to the Ensure Data Origin Authentication use case [11], data signature generation and validation attempts (successfully or not performed) have to be audited or not according to the specific audit policy.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0642
Requirement	SWIM-TI Audit shall allow to audit message signature and signature validation attempts according to the Audit Policy
Title	Policy Based message signature generation and validation attempts auditing
Status	<In Progress>
Rationale	The need for audit or not of the message signature and attempts (successful or not) can be determined according to a Audit Policy
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED TO>	<Functional block>	SEC	N/A
<APPLIES TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

3.3.1.3 Identity Management

As described in §2.6, the Identity Management includes the following functional aspects:

- Identity Management, which aims at securely administrating (creation, renewing) and storing digital identity. These features are typically provided by an *Identity Provider* which also represents an abstraction layer to access to identity registries. In a federated security model there is one Identity Provider for each security domain. All the Identity Providers are federated through the federated identity provisioning and identity propagation features.
- (Federation) Identity information provisioning (Authentication broker on consumer side provides propagates the information), de-provision (Authentication broker on provider side requests the information to the consumer side broker - request/response) and mapping identity information across trusted security domains.

In the following requirements "Identity Management service" and "Identity Provider" meaning the same.

[REQ]

Identifier	REQ-14.01.04-TS-0002.0311
Requirement	SWIM-TI Identity Management shall provide capabilities for issuing, validation, renewal, and cancellation of digital identities (security tokens).
Title	Identity Provider provides issuing, renewal, validation, and cancellation capabilities
Status	<In Progress>
Rationale	In order to be able to authenticate and authorize to a service, the Iidentity Pprovider shall provide capabilities for issuing, validation, renewal, and cancellation of digital identities (security tokens).
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0841
Requirement	SWIM-TI Identity Management shall support the following tokens: + Username or Identification number (plain text) + X509 certificate (binary) + SAML (XML text document)
Title	Supported Security Tokens
Status	<In Progress>
Rationale	This requirement states the security tokens supported by the Identity Management.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0082
Requirement	SWIM-TI Identity Management shall be able to support inter-system identity information exchange by: + Secure management, storage and use of security identity information + Provisioning and de-provisioning identity information across trusted security domains + Propagation and mapping identities across trust domains
Title	SWIM Technical Infrastructure identity management interface
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed and federated systems interconnected at network level. In step2, the concept of identity federation is that a security token issued from one federated security system should be reused (repeatedly or as reissued) for consumptions of resources “located” in distinctive (federated) security systems. Such federation describes IT systems that have made agreement to trust each other and to mutually recognize issued user identities. Ref [13]

	In order to cover these objectives, identity management functionality is needed. Taking into account that such systems already use trusted Certification Authorities (CAs), it is required to assure the integration with the SWIM-TI Identity Management.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-7	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_032	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0851
Requirement	SWIM-TI Identity Management shall provide an identity repository / directory in order to store (create/update/delete) the identities.
Title	Identity Repository
Status	<In Progress>
Rationale	Identity repository/directory is used to store persistently digital identities and any relevant identity attributes.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0291
Requirement	SWIM-TI Identity Management shall offer functionality for the definition of user (and associated attributes), and their classification into groups, roles, and organisations.
Title	Identity definition and classification
Status	<In Progress>
Rationale	In order to store, use and manage digital identities, it is required to have available proper functions aiming at support the creation and the

	classification of users and the corresponding identities.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0301
Requirement	The Authentication Policy shall specify the type of identity security token
Title	Authentication Policy specified identity security token type
Status	<In progress>
Rationale	For each service there is a policy
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	REG	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0302
Requirement	The Authorization Policy shall specify the type of identity security token
Title	Authorization Policy specified identity security token type
Status	<In progress>
Rationale	For each service there is a policy
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

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

<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0320
Requirement	The Identity Provider shall provide a service capable of establishing timely constrained security sessions, which authenticate conversations between Service Consumers and Service Providers.
Title	Identity Provider creates and distributes cryptographic material
Status	<In Progress>
Rationale	In order to be able to establish a time-constrained secure conversation context, the Identity Provider shall be capable to create and provide cryptographic material to service consumers and providers.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0330
Requirement	Identity Provider shall be able to establish trusted federation with other Identity Providers.
Title	Identity Provider trusted Federation
Status	<In Progress>
Rationale	Identity Provider shall be able to establish trusted federation with other Identity Providers in order to provide security token conversion, authentication and authorization for tokens issued by trusted federation members.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0341
Requirement	Identity Management Federation shall be configurable in order to specify mapping rules enabling different digital identity representations issued by different Identity Providers to be assigned to the same subject (authentication).
Title	Identity Management Federation Configuration
Status	<In Progress>
Rationale	In order to be able to consume services which belong to distinct security realms.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0342
Requirement	Identity Management Federation shall be configurable through the exchange of federation meta-data documents.
Title	Identity Management Federation Configuration mechanism
Status	<In Progress>
Rationale	In order to be able to consume services which belong to distinct security realms, Identity Management Federation shall be configurable through the exchange of federation meta-data documents.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0860
Requirement	Identity Provider shall provide the possibility for a consumer in a Identity Federation Environment to sign-in and sign-out.
Title	Identity Provider federated sign-in and sign-out
Status	<In Progress>
Rationale	Once signed-in at a local system, the consumer will be authenticated and authorized to consume services provided by federated systems as well.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

3.3.1.4 Policy Management Requirements

In this paragraph policy management requirements for the SWIM-TI Security are provided..

[REQ]

Identifier	REQ-14.01.04-TS-0002.0011
Requirement	SWIM-TI Security shall allow the application of different types of security policies at the granularity of a SWIM ATM specific service.
Title	Support of Security Policies at SWIM Service granularity
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of Systems and using the PENS as networking infrastructure. It is reasonable to consider that different SWIM services (or groups of) have different security constraints and that for a given SWIM service there could be different consumers having different authorisation (i.e. a user in a role 'R' has the right to use service 'S') and/or authentication (i.e. a service could be available only to authenticated users or public available) policies. This requires to apply the security policies at granularity of a SWIM service.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-23	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_043	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_046	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A

<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>

3.3.1.5 Policy Enforcement Requirements

Security policy enforcement relies of features provided by the PEP described in 14.01.04.D41-006 §3..

3.3.1.6 Authentication Requirements

SWIM-TI Authentication as part of the SWIM-TI Security, is an infrastructure service and it is related to Access Control. It provides authentication according to the brokered authentication pattern. The SWIM-TI Authentication:

- Supports different authentication mechanisms,
- Validation and issuing of authentication credentials,
- Supports resources requestor authentication and requestor-provider authentication (mutual authentication),
- Realization of a federate single sign-on (brokered authentication) relying on identity service

[REQ]

Identifier	REQ-14.01.04-TS-0002.0682
Requirement	SWIM-TI Security shall provide identity authentications based on different mechanisms including: + Username and Password, and/or + Use of Security Tokens
Title	SWIM Technical Infrastructure service provider identity authentication
Status	<In Progress>
Rationale	Authentication aims at providing the ability to authenticate identity according to the brokered authentication pattern. This service includes the feature of support of different authentication mechanisms such as user name and password and more complex security tokens.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0121
Requirement	SWIM-TI Security shall use X509 certificates for system or machine authentication.
Title	SWIM Technical Infrastructure X509 certificates basis authentication
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required. This requirement assures that X509 certificates are used.
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-11	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_018	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0661
Requirement	SWIM-TI Security shall provide between service consumer and provider for different federated security system, both the following authentication schemes: - Requestor-provider authentication (mutual authentication) mechanism, and - Only resource requestor authentication
Title	SWIM Technical Infrastructure mutual authentication mechanism support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and

	service (ATM-specific and Infrastructure services) consumer/provider authentication. This requirement assures that the SWIM Technical Infrastructure allows systems involved in the communication to mutually authenticate each other. This requirement is also derived from A/G requirements REQ-A15-0020.0001, REQ-A15-0020.0002 identified in SWIM Action Plan A15.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<SATISFIES>	<ATMS Requirement>	09.19-D03-210	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-220	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-230	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0111
Requirement	SWIM-TI Security shall provide service consumer authentication based on static username/password mechanism.
Title	SWIM Technical Infrastructure static service consumer authentication support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. This requirement assures that all the service consumers are properly authenticated guarantying their authenticity.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A

<ALLOCATED TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0681
Requirement	The authentication policy, when requiring username/password as digital identity, shall provide constraints about the password minimum requirements of: + Length; + Entropy; + symbol set; + renewal interval.
Title	SWIM Technical Infrastructure consumer authentication password strength
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. This requirement assures that all the service consumers use password with minimum requirements of length, entropy, symbol set and renewal interval guarantying their strength.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED TO>	<Functional block>	SEC	N/A
<APPLIES TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0350
Requirement	The SWIM-TI security policy enforcement shall allow a service provider to authenticate a consumer request by mutual authentication mechanism.
Title	SWIM Technical Infrastructure mutual authentication mechanism support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. This requirement assures that the SWIM Technical Infrastructure does not allow service consumption when the consumer is not authenticated according to policy enforcement.

	This requirement is also derived from A/G requirements REQ-A15-0020.0001, REQ-A15-0020.0002 identified in SWIM Action Plan A15.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-210	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-220	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-230	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0671
Requirement	SWIM-TI Security shall provide a federated single sign-on and sign-off for access to resources by consumers.
Title	SWIM Technical Infrastructure service provider federated access
Status	<In Progress>
Rationale	In the heterogeneous environment of systems and stakeholders of SWIM-TI, a federated single sign-on for authentication can greatly simplify the difficulties associated to a user consumption of services from a different security domain.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0441
Requirement	SWIM-TI Security shall notify a Federated Security System if an entity of the Federated Security System is placed in a blacklist.
Title	Federated blacklisted entities

Status	<In Progress>
Rationale	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. SWIM-TI Security System will notify a Federated Security System of a blacklisted entity. This defines some minimal requirements the Authorization Policy shall obey.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0452
Requirement	SWIM-TI Security shall provide the following mechanisms to release a blacklisted entity in a Federated Security System: + Automatically after a Policy defined maximum blacklist period + Manually
Title	Liberation mechanisms of blacklisted entities
Status	<In Progress>
Rationale	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. SWIM-TI Security System needs to provide the appropriate mechanisms to release previously blacklisted entities.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0460
Requirement	The SWIM-TI Authentication shall notify the relevant Federated Security Systems and Audit if an entity is released from authentication blacklisting.
Title	Federated liberation of blacklisted entities
Status	<In Progress>
Rationale	Federated Security Systems need to know when a blacklisted entity has been released from the blacklist list in order to allow their further consumption of services/data. This defines some minimal requirements the Authorization Policy shall obey.

Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0431
Requirement	The SWIM-TI Authentication shall retrieve the maximum number of possible authentication attempts from SWIM-TI Authentication Policy or from information exchange between federated systems.
Title	Federated maximum number of authentication attempts
Status	<In Progress>
Rationale	Authentication blacklists are to be part of SWIM-TI to prevent abuse of authentication attempts. The maximum number of authentications has to be known also by the different federated security systems.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0701
Requirement	SWIM-TI Security shall detect and record failed authentication attempts when the identity of the consumer and/or the authentication information provided by the consumer is invalid.
Title	SWIM Technical Infrastructure failed authentications detection support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication.

	Failed authentication attempts are detected and reported for monitoring or security protection purposes.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0571
Requirement	SWIM-TI Authentication shall blacklist entities of the same or different Federated Security Systems when the number of their failed authentication requests exceeds the number of authentication attempts specified into the specific SWIM-TI Authentication Policy.
Title	Entity blacklisted according to maximum number of authentication attempts
Status	<In Progress>
Rationale	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. This requirement defines when an entity shall be blacklisted after exceeding a certain number of failed authentication attempts.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0002.0710
Requirement	SWIM-TI Authentication shall report to Audit when an entity has been placed in a blacklist.
Title	Audit report when an entity is blacklisted
Status	<In Progress>
Rationale	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. This requirement ensures the blacklisting event is reported to the Audit.

Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.1.7 Authorization Requirements

SWIM-TI Authorization is in charge of granting/denying permission to consumption of services and access to data, as part of SWIM-TI Security. It relies on Authentication and Identity Management to gather the relevant information enabling the Authorization process and on Policy Management and the PEP to provide a policy based approach to Authorization.

The relevant Use Cases can be found in Appendix A.

[REQ]

Identifier	REQ-14.01.04-TS-0002.0360
Requirement	SWIM-TI Security shall permit a requestor to consume a service if and only if its authorization is successful.
Title	SWIM-TI authorized consumption services
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. This requirement ensures that the SWIM Technical Infrastructure allows service consumption when the consumer is authorized to consume it. This requirement is also derived from A/G requirement REQ-A15-0020.0001 identified in SWIM Action Plan A15.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-230	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0370
Requirement	The SWIM-TI Security shall provide Attribute Based Access Control (ABAC).
Title	SWIM-TI ABAC support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authorization, access control needs to be based upon assigned roles or some dynamic characteristic of the data being accessed (geographical locations, time, value of a given attribute). These can be implemented using ABAC with the inclusion of a Role attribute.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0380
Requirement	The SWIM-TI Security shall provide Role Based Access Control by means of a mandatory role attribute in ABAC.
Title	SWIM-TI support for Role in Access Control
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authorization, access control needs to be based upon assigned roles or some dynamic characteristic of the data being accessed (geographical locations, time, value of a given attribute). These can be implemented using ABAC with the inclusion of a Role attribute.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0391
Requirement	The SWIM-TI Security shall allow the enforcement of the Authorization security Policy: + During every information exchange from the SWIM-TI to an external network (e.g. Internet), and + During every information exchange from an external network (e.g. Internet) to the SWIM-TI
Title	SWIM-TI Secure Import and Export by Information Authorization
Status	<In Progress>
Rationale	The SWIM-TI Security needs to ensure secure (integral, confidential, authentic) interchange of information between external networks and the SWIM-TI. To that end it should be possible to allow the Authorization Policy to be enforced during every information exchange with external networks.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0411
Requirement	The PEP shall allow the SWIM-TI Authorization Policy to be enforced during a demand of authorization request.
Title	Authorization Policy Enforcement
Status	<In Progress>
Rationale	SWIM-TI Authorization will be enforced on a policy basis, this ensures a consistent, systematic application of the established authorization rules and policies. This requirement ensures the enforcement of Authorization Policy during customer demands of authorization.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0471
Requirement	The SWIM-TI Security shall allow to prevent consumption/access to any

	service/data not covered by a validated Security Authorization policy.
Title	SWIM-TI Security mandates an applicable authorization policy
Status	<In progress>
Rationale	Making every consumption/access to be covered by a validated Security policy enforces a mandatory policy based authorization and prevents unauthorized consumption/access by default.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0481
Requirement	The SWIM-TI Security shall allow to lock inactive sessions after a Policy defined amount of time, to prevent unauthorized access to the system.
Title	SWIM-TI session timeout locking
Status	<In progress>
Rationale	Inactive sessions are a potential security breach as they may be used by unauthorized bystanders. Inactive sessions lock on minimizes this risk.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0721
Requirement	SWIM-TI Authorization Policy shall allow to limit audit record access, modification and deletion to accounts having “Audit Administrator” role.
Title	Audit Records Access restriction
Status	<In progress>
Rationale	Due to the critical sensitivity of the information managed in SWIM it is necessary that privileged access to this information is kept to a minimum and only to those accounts having an "Audit Administrator" role.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.1.8 Audit Requirements

SWIM-TI Audit as part of the SWIM-TI Security, is in charge of providing logging and reporting of Security related events, allowing the future review, analysis and assessment of these events.

The relevant Use Cases can be found in Appendix A.

[REQ]

Identifier	REQ-14.01.04-TS-0002.0750
Requirement	The SWIM-TI Security shall include a functionality for reporting the handling of the following Security Incidents: + Denial of Service + Intrusion + Malicious or unauthorized software installation + Reconnaissance (e.g. port scanning) + Physical damage + Information compromise + Software failure (with security implications)
Title	SWIM-TI support for incident reporting
Status	<In Progress>
Rationale	It is important to monitor any incidents that may have an impact on security. This requirement ensures that the SWIM Technical Infrastructure provides a functionality aiming at reporting the handling of these incidents.
Category	<Functional><HMI><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0760
Requirement	The SWIM-TI Security shall provide a functionality for reporting the following detailed information about any one of the Security Incidents defined in REQ-14.01.04-TS-0002.0750: + Causes of the incident + Impact of the incident + How it was handled (step by step description) + Consequences of the incident + What actions were put in place to mitigate the consequences

	+ Status of the incident
Title	SWIM's incident reporting details
Status	<In Progress>
Rationale	It is important to monitor any incidents that may have an impact on security. This requirement specifies the specific details the reporting functionality shall cover. It is expected that some human interaction is needed for fulfilling these reports.
Category	<Functional><HMI><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0490
Requirement	The SWIM-TI Security shall uniquely log all user and system access to SWIM services/data detailing: + Time and date of access + Ip of user/system + Services/data accessed (where technically possible)
Title	SWIM's access unique identification logging
Status	<In Progress>
Rationale	In order to enable the auditing of these accesses it is necessary to log every one of them. Additionally, to have more control of access times, patterns and what is done to/with the information; time of access and data/services accessed need to be logged too.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0511
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after a Demand of Identity and Authentication Information Assertion.
Title	Authenticate Identity's Audit Policy Enforcement
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a Demand of Identity and Authentication Information Assertion. Refer to

	Authenticate Identity UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0521
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after a Demand of Data Encryption.
Title	Encryption's Audit Policy Enforcement
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a Demand of Data Encryption. Refer to Ensure Confidentiality UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0531
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after a Demand of Confidentiality Assertion.
Title	Decryption's Audit Policy Enforcement
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a Demand of Confidentiality Assertion. Refer to Ensure Confidentiality UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0541
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after data signature during a Information Origin Authentication process.
Title	Information Origin Authentication's Audit Policy Enforcement (signature)
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a data signature during a Information Origin Authentication process. Refer to Ensure Information Origin Authentication UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0551
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after signature verification during a Information Origin Authentication process.
Title	Information Origin Authentication's Audit Policy Enforcement (signature verification)
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a signature verification during a Information Origin Authentication process. Refer to Ensure Information Origin Authentication UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0561
Requirement	The PEP shall allow the SWIM-TI Audit Policy to be enforced after a Demand of Authorization Request.
Title	Authorization request's Audit Policy Enforcement
Status	<In Progress>
Rationale	To enable the auditing process every security related event needs to be logged with all the additional information specified by the applicable Audit Policy. This requirement ensures that the Audit Policy is enforced after a Demand of Authorization Request. Refer to Ensure Authorization UC sequence diagram in Appendix A.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0770
Requirement	SWIM-TI Security shall log everything specified in applicable service-specific Audit Policy.
Title	Audit's service-specific logging
Status	<In Progress>
Rationale	The existence of service-specific Audit policies may supplement/override the Global (default) Audit Policy. This requirement ensures that everything specified in additional applicable Audit Policies is logged.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0780
Requirement	SWIM-TI Security shall record events with all additional data specified in the applicable service-specific Audit Policy.
Title	Audit's service-level specific logging
Status	<In Progress>
Rationale	The existence of service-specific Audit policies may supplement/override the Global (default) Audit policy. This requirement ensures that any additional data required by these Policies gets logged.

Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0820
Requirement	SWIM-TI Security shall log every blacklisted entity with any additional information provided by Authentication.
Title	Log of blacklisted entities
Status	<In Progress>
Rationale	Blacklisted entities need to be logged for future auditing purposes, any additional information provided by Authentication is valuable as it aids the Audit process.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0831
Requirement	SWIM-TI Security shall allow for Federated Security System to log every blacklist release and the mechanism applied for its release: + Automatic after a Policy defined amount of time + Manual (with reason provided for release)
Title	Log of blacklist releases
Status	<In Progress>
Rationale	Blacklist releases need to be logged for future auditing purposes.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.1.9 Security Enablers

[REQ]

Identifier	REQ-14.01.04-TS-0002.0132
Requirement	SWIM TI Security shall use PKI to retrieve X.509 certificates
Title	SWIM-TI Security certificates retrieve
Status	<In progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required and those have to be signed by a trusted Certification Authority (CA) and managed by the PKI.
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-13	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_032	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0133
Requirement	SWIM-TI Security shall use PKI to validate X.509 certificates
Title	SWIM-TI Security certificates validation
Status	<In progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required and those have to be signed by a trusted Certification Authority (CA) and managed by the PKI.

Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-13	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_032	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0162
Requirement	The SWIM-TI Security shall protect the overall SWIM-TI against overload resulting from + Denial of Service Attack, or + Service Utilisation above maximum levels
Title	SWIM Technical Infrastructure overload protection support
Status	<In Progress>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication and to protect information and systems from external unknown and malicious users. This requirement assures that the SWIM Technical infrastructure is protected against overload due to attacks or to legitimate, but above thresholds, use of services.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

As described in §2.6, one important security enablers is the Time service (refer also to *Time Analysis B.04.03 deliverable D32-02*). The Time Service Enabler for ATM systems and ATM actors is an enabler for time information related to some of the SWIM-TI operations described in this specification.

For what concerns SWIM-TI this is introduced in §3.1.8 and specified in REQ-14.01.04-TS-0811.0010.

Furthermore, as described in §2.6, SWIM-TI Security relies also on PKI and BCA components which are defined in [29] and [30] respectively.

3.3.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.3.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.3.3.1 Time behaviour, §3.3.3.2 Resource utilization and §3.3.3.3 Capacity.

3.3.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.3.3.2 Resource utilization

[REQ]

Identifier	REQ-14.01.04-TS-0202.0001
Requirement	In the SWIM-TI, the maximum persistent storage for auditing and logging per SWIM Node shall be 10GB.
Title	SWIM-TI Scalability Capacity
Status	<In Progress>
Rationale	The maximum storage for persistent auditing and logging per SWIM Node is based on the SWIM Profile White Paper and ISO 250101. The capacity is provided in 14.01.03 D32 SWIM Profiles for Step2.
Category	<Performance>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.3.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.3.4.1 Confidentiality, §3.3.4.2 Integrity, §3.3.4.3 Non-repudiation, §3.3.4.4 Accountability and §3.3.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.3.4.6) is provided for safety requirements.

3.3.4.1 Confidentiality

[REQ]

Identifier	REQ-14.01.04-TS-0402.0020
Requirement	The SWIM-TI Security shall limit audit record access to users with an Audit Administrator role.
Title	SWIM Technical Infrastructure Audit access
Status	<In progress>
Rationale	Due to the sensitivity of read/write access to Audit records it is required that this access is preserved to Audit Administrators
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.4.2 Integrity

[REQ]

Identifier	REQ-14.01.04-TS-0402.0010
Requirement	Communication between Identity Provider and service consumers and providers shall be secured (authentication, authorization, integrity, confidentiality).
Title	Identity Provider Security
Status	<In Progress>
Rationale	In order to establish a secure communication, communication between Identity Provider and service consumers and providers shall be adequately secured regarding authentication, authorization, integrity, and confidentiality.
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A

<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.3.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.3.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.3.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.3.4.6 Safety

Requirements concerning this category have not been identified yet.

3.3.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.3.5.1 Modularity, §3.3.5.2 Reusability, §3.3.5.3 Analysability, §3.3.5.4 Modifiability and §3.3.5.5 Testability.

3.3.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.3.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.3.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.3.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.3.5.5 Testability

Requirements concerning this category have not been identified yet.

3.3.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.3.6.1 Maturity, §3.3.6.2 Availability, §3.3.6.3 Fault tolerance and §3.3.6.4 Recoverability.

3.3.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.3.6.2 Availability

Requirements concerning this category have not been identified yet.

3.3.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.3.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.3.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.3.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.3.8.1 Co-existence and §3.3.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.3.8.3 Installability and §3.3.8.4 Replaceability).

3.3.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.3.8.2 Interoperability

[REQ]

Identifier	REQ-14.01.04-TS-0002.0031
Requirement	Cryptographic algorithms and key sizes shall comply with European Network of Excellence in Cryptology (ECRYPT) II recommendations.
Title	SWIM Technical Infrastructure cryptographic algorithms compliance
Status	<In Progress>
Rationale	ECRYPT II recommendations represent a reference that is used to analyze and to identify the most appropriate cryptographic algorithms and key sizes. For further information about ECRYPT II, please refer to http://www.ecrypt.eu.org. The encryption algorithms are agreed between partners but are not published for sensitivity reasons. However, taking into account that the access to these information represents a key point enabling the interoperability, the partners are expected to evaluate how to properly govern the access to these information.
Category	<Functional><Safety><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-SEC-12	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.02-REQ_029	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.02	N/A
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A
<SATISFIES>	<Enabler>	A/C-47	<Full>
<SATISFIES>	<Enabler>	A/C-57	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<Enabler>	AGSWIM-43	<Full>
<SATISFIES>	<Enabler>	AGSWIM-44	<Full>

3.3.8.3 Installability

Requirements concerning this category have not been identified yet.

3.3.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.3.9 Functional block Interface Requirements

[REQ]

Identifier	REQ-14.01.04-TS-0902.0010
Requirement	Identity Provider shall provide interfaces (B2B, HMI) for trust/federation configuration.
Title	Security Token Service Federation Configuration Interfaces
Status	<In Progress>
Rationale	In order to be able enter meta-data documents, the Identity Provider shall provide interfaces (B2B, HMI) for trust/federation configuration.
Category	<Functional><Interface><Security>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<ALLOCATED_TO>	<Functional block>	SEC	N/A
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

3.4 Supervision Functional and non-Functional Requirements

3.4.1 Capabilities

Step 1 SPV requirements have been all deleted (refer to Appendix B) and substituted by the ones provided in the following sections.

Due to the approach adopted for the SWIM-TI SPV described in [10], allocation of Requirements to SWIM Profiles (14.01.03.D32) has been done in a way in which all the requirements trace all the Step1 SWIM Profiles (except to those that refer a explicit characteristic of a concrete profile). This is intended to be updated in further iterations when new SWIM Profiles are defined.

3.4.1.1 Service Control and Lifecycle Requirements

Requirements concerning this category have not been identified yet.

3.4.1.2 Status Monitoring, Reporting, and Publication Requirements

Refer also to requirements included in §3.5.

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0005.0660	The SWIM-TI Supervision shall monitor the technical and functional status of each configured SWIM Enabling Service.	D41-006 §3.5.1
REQ-14.01.04-TS-0005.0670	The SWIM-TI Supervision shall monitor the technical and functional status of each configured SWIM Service.	D41-006 §3.5.1
REQ-14.01.04-TS-0005.0680	The SWIM Supervision FB should monitor the operating condition of each of the following configured resources that are to be managed by Supervision at the local SWIM Node: 1. Node Hardware resources 2. Node Software (process) resources 3. Data communications resources. Configuration information at the local SWIM Node specifies which resources are to be managed by SWIM Supervision.	D41-006 §3.5.1

3.4.1.3 Subscription Management Requirements

Requirements concerning this category have not been identified yet.

3.4.1.4 Service Level Agreement (SLA) Compliance Monitoring Requirements

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0005.1020	The SWIM-TI Supervision shall collect the following service metrics on a Service with a Request/Response interaction pattern for each consumer-provider pair: ▪ Service Time ▪ Number of Requests ▪ Time of the Last Request ▪ Number of Failed Requests ▪ Number of Successful Requests ▪ Maximum Response Time ▪ Average Response Time Last Response Time.	D41-006 §3.5.1.4
REQ-14.01.04-TS-0005.1030	The SWIM Supervision FB shall collect the following service metrics on a Service with a Publish/Subscribe interaction pattern: ▪ Service time ▪ Number of Data publications ▪ Time of the last data publication Number of failed data publications.	D41-006 §3.5.1.4
REQ-14.01.04-TS-0005.1040	The SWIM Supervision FB shall monitor service metrics against configured thresholds.	D41-006 §3.5.1.4
REQ-14.01.04-TS-0005.1050	The SWIM Supervision FB shall provide an indication when a monitored service metric violates a configured threshold.	D41-006 §3.5.1.4

3.4.1.5 Alarms Requirements

Requirements concerning this category have not been identified yet.

3.4.1.6 Logging Requirements

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0005.1220	The SWIM-TI Supervision should log in persistent storage each change to the lifecycle status of a monitored service, where the logged information for a status change contains the following information: 1. Date and time of status change 2. Identifier for the element whose status has	D41-006 §3.5.1.6

	changed 3. Status before the change Status after the change.	
REQ-14.01.04-TS-0005.1230	The SWIM-TI Supervision should log in persistent storage each change to the lifecycle status of a monitored resource, where the logged information for a status change contains the following information: 1. Date and time of status change 2. Identifier for the element whose status has changed 3. Status before the change Status after the change.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1240	The SWIM-TI Supervision should log in persistent storage the following alarm-related events: 1. Raising of an alarm condition for a monitored resource Clearing of an alarm condition for a monitored resource	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1250	The SWIM-TI Supervision should provide the following information for each alarm event recorded in the log: 1. Date and time of event 2. Identifier for the event, where event is one of (RAISE ALARM, CLEAR ALARM) 3. Identifier for the alarm Identifier for resource causing the alarm.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1260	The SWIM-TI Supervision should log in persistent storage the following threshold-related events: 1. A violation of a monitored metric threshold Clearing of a violation condition for a monitored metric threshold.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1270	The SWIM-TI Supervision should provide the following information for each threshold-violation event recorded in the log: 1. Date and time of violation 2. Identifier for the violated threshold 3. Identifier for service violating the threshold 4. If applicable for the service pattern, identifier of the service consumer in the producer-consumer pair associated with the violation. 5. Configured threshold control value Actual value of the service metric.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1280	The SWIM-TI Supervision should provide the following information for each threshold-violation clearing event recorded in the log: 1. Date and time of clearing of violation 2. Identifier for the violated threshold 3. Identifier for service violating the threshold 4. If applicable for the service pattern, identifier of the service consumer in the producer-consumer pair associated with the violation. 5. Configured threshold control value Actual value of service metric.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1310	The SWIM-TI Supervision should log in persistent storage an error that is detected in launching a service.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1320	The SWIM-TI Supervision should provide the following information for each launch error recorded in the log: 1. Date and time of error 2. Identifier for the error Identifier for service for which the launch was attempted.	D41-006 §3.5.1.6

REQ-14.01.04-TS-0005.1330	The SWIM-TI Supervision should log in persistent storage an error that is detected in stopping a service.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1340	The SWIM-TI Supervision FB should provide the following information for each error in stopping a service that is recorded in the log: 1. Date and time of error 2. Identifier for the error Identifier for service for which the stop operation was attempted.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1350	The Service Control function should log in persistent storage an error that is detected during an attempt to start a service that is in the STOPPED state	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1360	The SWIM-TI Supervision should provide the following information for each error in starting a previously-stopped service that is recorded in the log: 1. Date and time of error 2. Identifier for the error Identifier for service for which the start operation was attempted.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1390	The SWIM-TI Supervision should log in persistent storage a change to stored service metric threshold information, where the log data contains the following information: . Date and time of change event . Content of change data.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1410	The SWIM-TI Supervision should retain logged information about status lifecycle changes in persistent storage for a configurable number of days.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1430	The SWIM-TI Supervision should retain logged information about metrics threshold configuration changes in persistent storage for a configurable number of days.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1440	SWIM Supervision FB should retain logged information about alarm events for a configurable number of days.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1450	SWIM Supervision FB should retain logged information about metrics threshold violations for a configurable number of days.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1460	The SWIM Supervision FB should retain logged information about the clearing of metrics threshold violations for a configurable number of days.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1470	The SWIM Supervision FB should retain logged metrics data in persistent storage for a configurable number of days, where the metrics have been collected as set forth in REQ-14.01.04-TS-0005.0570 for SWIM Enabling Services and SWIM Services with a Request/Response interaction pattern.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1480	The SWIM Supervision FB should retain logged metrics data in persistent storage for a configurable number of days, where the metrics have been collected as set forth in REQ-14.01.04-TS-0005.0580 for SWIM Enabling Services and SWIM Services with a Publish/Subscribe interaction pattern.	D41-006 §3.5.1.6
REQ-14.01.04-TS-0005.1510	The SWIM Supervision FB should initiate archival of log data that is older than the number of days specified by configuration information.	D41-006 §3.5.1.6

3.4.1.7 Statistical Information and Reports Requirements

Requirements concerning this category have not been identified yet.

3.4.1.8 Configuration Information Management Requirements

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0005.1660	The SWIM-TI Supervision should allocate persistent storage for service configuration information.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1670	The SWIM-TI Supervision should allocate persistent storage for logging of accepted changes to stored configuration information.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1680	The SWIM-TI Supervision should allocate persistent storage for logging of service status changes.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1690	The SWIM-TI Supervision should allocate persistent storage for logging of service metrics.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1700	The SWIM-TI Supervision should allocate persistent storage for the logging of alarm status events.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1710	The SWIM-TI Supervision should allocate persistent storage for logging of monitored threshold events (violation, clearing of violation).	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1720	The SWIM-TI Supervision should allocate persistent storage for the logging of successful process control events.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1740	The SWIM Supervision FB at each SWIM Node should use a stored configuration to determine the following: The SWIM Node hardware resources to be monitored The SWIM Node software (process) resources to be monitored The SWIM Node data communications resources to be monitored.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1750	The SWIM Supervision FB at each SWIM Node should use a stored configuration to determine the following: + The SWIM Services to be monitored + The SWIM Enabling Services to be monitored.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1800	The SWIM Supervision FB at each SWIM Node should store a launch configuration in persistent storage for each SWIM Service and SWIM Enabling Service.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1810	The SWIM Supervision FB should provide launch configuration information to a service upon launch.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1820	The SWIM Supervision FB at each SWIM Node should use a stored configuration to determine the interaction pattern for each configured service, where the interaction pattern is one of the following: . Request/Response . Publish/Subscribe . Both Request/Response and Publish/Subscribe . Other.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1910	The SWIM Supervision FB should use stored configuration information to determine the number of days to retain lifecycle status log data.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1920	The SWIM Supervision FB should use stored configuration information to determine the number of days to retain alarm event log data.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1930	The SWIM Supervision FB should use stored configuration information to determine the number of days to retain service metrics log data.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1940	The SWIM Supervision FB should use stored configuration information to determine the number of days to retain metrics threshold violation and clearing event log data.	D41-006 §3.5.1.8
REQ-14.01.04-TS-0005.1950	The SWIM Supervision FB should use stored configuration information to determine the SWIM-TI capabilities that are to	D41-006 §3.5.1.8

be operational for the local SWIM Node.

3.4.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.4.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.4.3.1 Time behaviour, §3.4.3.2 Resource utilization and §3.4.3.3 Capacity.

3.4.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.4.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.4.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.4.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.4.4.1 Confidentiality, §3.4.4.2 Integrity, §3.4.4.3 Non-repudiation, §3.4.4.4 Accountability and §3.4.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.4.4.6) is provided for safety requirements.

3.4.4.1 Confidentiality

Requirements concerning this category have not been identified yet.

3.4.4.2 Integrity

Requirements concerning this category have not been identified yet.

3.4.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.4.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.4.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.4.4.6 Safety

Requirements concerning this category have not been identified yet.

3.4.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.4.5.1 Modularity, §3.4.5.2 Reusability, §3.4.5.3 Analysability, §3.4.5.4 Modifiability and §3.4.5.5 Testability.

3.4.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.4.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.4.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.4.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.4.5.5 Testability

Requirements concerning this category have not been identified yet.

3.4.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.4.6.1 Maturity, §3.4.6.2 Availability, §3.4.6.3 Fault tolerance and §3.4.6.4 Recoverability.

3.4.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.4.6.2 Availability

Requirements concerning this category have not been identified yet.

3.4.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.4.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.4.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.4.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.4.8.1 Co-existence and §3.4.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.4.8.3 Installability and §3.4.8.4 Replaceability).

3.4.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.4.8.2 Interoperability

Requirements concerning this category have not been identified yet.

3.4.8.3 Installability

Requirements concerning this category have not been identified yet.

3.4.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.4.9 Functional block Interface Requirements

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0905.0200	The SWIM-TI Supervision should log in persistent storage the following threshold-related events: 2. A violation of a monitored metric threshold Clearing of a violation condition for a monitored metric threshold.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0210	The SWIM Supervision FB should provide images that are part of a report in the format selected by the report requester, where the allowed format choices are the following: . Portable Network Graphics, ISO/ IEC 15948:2003 (PNG) . Joint Photographic Experts Group, ISO/IEC 10918-1 (JPEG).	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0220	The SWIM Supervision FB should generate a report in a machine readable format suitable for importing into spreadsheets and other automated processing software, as selected by the authorized requester, where the allowed format choices are the following: . Comma-separated values format . Tab-separated values format . Space-delimited text format . Open Document Format (ODF).	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0010	SWIM-TI SPV shall provide an interface as services provided and consumed to the ATM System Supervision	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0020	SWIM-TI SPV shall provide an interface as services provided and consumed to other SWIM-TI SPV distributed instances	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0030	SWIM-TI SPV shall provide an interface as services provided and consumed to the external world	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0050	SWIM-TI SPV-System Supervision Interface shall provide operations for querying status from the System Supervision.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0060	SWIM-TI SPV-System Supervision Interface shall provide operations for querying statistics from the System Supervision.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0070	SWIM-TI SPV-System Supervision Interface shall provide operations for querying status alerts from the System Supervision.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0080	SWIM-TI SPV-System Supervision Interface shall provide operations for querying SLA alerts from the System Supervision.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0100	External Interface shall provide operations for querying metrics from the SWIM SPV.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0160	All Swim SPV interfaces shall provide an operation, or a set of operations, to query the current values of all kind of supervised data of a Swim SPV entity.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0170	All Swim SPV interfaces shall provide an operation, or a set of operations, to enable a Swim SPV entity to periodically get refresh of supervised data values.	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0180	All Swim SPV interfaces shall provide an operation, or a set of operations, to enable a Swim SPV entity to publish/subscribe last N samples of supervised data values. N > 0	D41-006 §3.5.9
REQ-14.01.04-TS-0905.0190	Swim SPV Interfaces shall support the use of standard formats for data exchange.	D41-006 §3.5.9

3.5 High Availability Functional and non-Functional Requirements

3.5.1 Capabilities

In this paragraph the high availability requirements are reported.

High Availability applies to SWIM-TI as it is a part of a ATM system. The COTS products used will support High Availability configurations that permit the technical infrastructure (and the ATM services it enables) to maintain an appropriate level of operation.

However, the High Availability specifications in this document only concern the SWIM-TI itself. The possible High Availability of the ATM Specific Service above (from layering perspective) and the Communication Network below the SWIM-TI are not in scope of these specifications.

Furthermore, the technical infrastructure should include capabilities that permit it to scale well, ensuring it can meet growing demand (e.g. increasing number of subscribers, service consumers, messages, message sizes).

Specific scalability requirements have to be identified according to both service non-functional and operational requirements. Taking into account the bottom-up approach adopted in Step 1 and also that WP14 has not received those requirements from WP8, it is not possible to detail such specific scalability requirements that instead will be defined for Step 2. However it is important to notice that the technologies used to implement SWIM-TI for step 1 already help supporting scalability of SWIM-TI.

3.5.1.1 Availability

Requirements concerning this category have not been identified yet.

3.5.1.2 Failure Detection and Isolation

Requirements concerning this category have not been identified yet.

3.5.1.3 Transparency

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0006.0001	The SWIM-TI Fault Tolerance capability of a SWIM node should provide replication transparency.	D41-006 §3.6.1.3
REQ-14.01.04-TS-0006.0010	The SWIM-TI Fault Tolerance capability of a SWIM node should provide failure transparency by masking to a service consumer the failure and possible recovery.	D41-006 §3.6.1.3

3.5.1.4 Request Retry

Requirements concerning this category have not been identified yet.

3.5.1.5 Redirection to an Alternate Server

Requirements concerning this category have not been identified yet.

3.5.2 Adaptability

Requirements concerning this category have not been identified yet.

3.5.3 Performance Characteristics

Requirements concerning this category have not been identified yet.

3.5.4 Safety & Security

Requirements concerning this category have not been identified yet.

3.5.5 Maintainability

Requirements concerning this category have not been identified yet.

3.5.6 Reliability

Requirements concerning this category have not been identified yet.

3.5.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.5.8 Design and Construction Constraints

Requirements concerning this category have not been identified yet.

3.5.9 Functional block Interface Requirements

Requirements concerning this category have not been identified yet.

3.6 Data Validation Functional and non-Functional Requirements

3.6.1 Capabilities

In this paragraph all the data validation requirements are reported. Data validation capability aims at providing the ability to check for conformance of information being passed through the SWIM-TI. The conformance conditions are expressed in form of well-defined policy assertions assigned to the basic service end-point interface specification.

The data validation capability is able to inspect data payload prior to the service execution and allow or deny a service access. The decision is made through the application of policy rules on the available data payload. With other words, the conformance check might also be related to the structure of messages exchanged among the ATM systems, for its syntax and semantic.

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0008.0001	The Data Validation (DV) capability shall be configurable at both service and message type levels.	D41-006 §3.7.1
REQ-14.01.04-TS-0008.0010	The Data Validation (DV) capability configuration for specific service and message type shall be based on: ▪ service type ▪ operation request and response message types	D41-006 §3.7.1
REQ-14.01.04-TS-0008.0030	The Data Validation (DV) capability shall report service requestor about any validation policy enforcement failure.	D41-006 §3.7.1

3.6.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.6.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.6.3.1 Time behaviour, §3.6.3.2 Resource utilization and §3.6.3.3 Capacity.

3.6.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.6.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.6.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.6.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.6.4.1 Confidentiality, §3.6.4.2 Integrity, §3.6.4.3 Non-repudiation, §3.6.4.4 Accountability and §3.6.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.3.4.6) is provided for safety requirements.

3.6.4.1 Confidentiality

Requirements concerning this category have not been identified yet.

3.6.4.2 Integrity

Requirements concerning this category have not been identified yet.

3.6.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.6.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.6.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.6.4.6 Safety

Requirements concerning this category have not been identified yet.

3.6.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.6.5.1 Modularity, §3.6.5.2 Reusability, §3.6.5.3 Analysability, §3.6.5.4 Modifiability and §3.6.5.5 Testability.

3.6.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.6.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.6.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.6.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.6.5.5 Testability

Requirements concerning this category have not been identified yet.

3.6.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.6.6.1 Maturity, §3.6.6.2 Availability, §3.6.6.3 Fault tolerance and §3.6.6.4 Recoverability.

3.6.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.6.6.2 Availability

Requirements concerning this category have not been identified yet.

3.6.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.6.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.6.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.6.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.6.8.1 Co-existence and §3.6.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.6.8.3 Installability and §3.6.8.4 Replaceability).

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0808.0001	The Data Validation capability shall be implemented relying on COTS libraries.	D41-006 §3.7.8

3.6.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.6.8.2 Interoperability

Requirements concerning this category have not been identified yet.

3.6.8.3 Installability

Requirements concerning this category have not been identified yet.

3.6.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.6.9 Functional block Interface Requirements

Requirements concerning this category have not been identified yet.

3.7 Recording Functional and non-Functional Requirements

3.7.1 Capabilities

In this section functional requirements of the SWIM-TI REC are provided.

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0004.0001	The SWIM Recording capability (REC) shall record the following information of a communication session in a data exchange between SWIM Nodes: . Time Stamp . Communication Session Context . Document Payload	D41-006 §3.8.1
REQ-14.01.04-TS-0004.0050	SWIM Recording capability shall retain data which has been collected as set forth in REQ-14.01.04-TS-0004.0001 for a configurable number of days.	D41-006 §3.8.1

3.7.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.7.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.7.3.1 Time behaviour, §3.7.3.2 Resource utilization and §3.7.3.3 Capacity.

3.7.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.7.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.7.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.7.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.7.4.1 Confidentiality, §3.7.4.2 Integrity, §3.7.4.3 Non-repudiation, §3.7.4.4 Accountability and §3.7.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.7.4.6) is provided for safety requirements.

3.7.4.1 Confidentiality

Requirements concerning this category have not been identified yet.

3.7.4.2 Integrity

Requirements concerning this category have not been identified yet.

3.7.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.7.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.7.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.7.4.6 Safety

Requirements concerning this category have not been identified yet.

3.7.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.7.5.1 Modularity, §3.7.5.2 Reusability, §3.7.5.3 Analysability, §3.7.5.4 Modifiability and §3.7.5.5 Testability.

3.7.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.7.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.7.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.7.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.7.5.5 Testability

Requirements concerning this category have not been identified yet.

3.7.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.7.6.1 Maturity, §3.7.6.2 Availability, §3.7.6.3 Fault tolerance and §3.7.6.4 Recoverability.

3.7.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.7.6.2 Availability

Requirements concerning this category have not been identified yet.

3.7.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.7.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.7.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.7.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.7.8.1 Co-existence and §3.7.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.7.8.3 Installability and §3.7.8.4 Replaceability).

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0804.0001	The SWIM Recording capability shall be implemented using COTS products.	D41-006 §3.8.8

3.7.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.7.8.2 Interoperability

Requirements concerning this category have not been identified yet.

3.7.8.3 Installability

Requirements concerning this category have not been identified yet.

3.7.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.7.9 Functional block Interface Requirements

Requirements concerning this category have not been identified yet.

3.8 Policy Enforcement Functional and non-Functional Requirements

3.8.1 Capabilities

As described in §2.6.1, Policy Enforcement FB aims at providing functionalities to enforce several kinds of policies including security policies (authorization, authentication, audit, etc.), messaging related policies (e.g. compression and QoS), supervision policies, etc. Therefore the requirements are not only applicable to Security policies but also to the other kind of policies that could be defined for the other FBs (those specified as relaying on a policy basis approach).

For what concerns this point, it is important to clarify how these policy are defined and which are applicable standards applicable when defining policies. As described in [10], at time of writing (November 2012), there is only one policy definition standard which is suitable from SWIM-TI: the WS-Policy which is a XML based taxonomy for general policy definitions. It is designed to be common purpose policy format to encode any kind of policy rules. WS-Policy compatible documents consist of a set of assertions which are combined using conditional expressions. Policy dialects for concrete functionality (for example for enforcement of some authentication rules) are then derived from general policy definition. Policy enforcement engines have to be designed and implemented to understand particular policy dialect or they must be extensible. That is because the WS-Policy defines only very

high level common concepts and doesn't prescribe how security or logging assertions will to be interpreted by an execution engine.

Requirement Identifier	Requirement	Requirement Source
REQ-14.01.04-TS-0013.0010	Policy Enforcement Infrastructure shall have a Policy Enforcement Point	D41-006 §3.9.1
REQ-14.01.04-TS-0013.0020	Policy Enforcement Infrastructure shall have a Policy Decision Point	D41-006 §3.9.1
REQ-14.01.04-TS-0013.0030	Policy Enforcement Infrastructure shall be able to manage the following security policies: + Confidentiality Policy + Authentication Policy + Authorization Policy + Information Origin Authentication Policy + Audit Policy	D41-006 §3.9.1
REQ-14.01.04-TS-0013.0040	Policy Enforcement Infrastructure shall be able to manage the following messaging policies: + Compression Policy + Quality of Service Policy	D41-006 §3.9.1
REQ-14.01.04-TS-0013.0050	Policy Enforcement Infrastructure shall be able to synchronously retrieve policies from the Policy Management	D41-006 §3.9.1
REQ-14.01.04-TS-0013.0060	Policy Enforcement Infrastructure shall be able to asynchronously retrieve policies from the Policy Management	D41-006 §3.9.1

3.8.2 Adaptability

This section includes Adaptability requirements as documented by ISO 25010. In particular it refers to Adaptability sub-characteristic of Portability NFRs.

Requirements concerning this category have not been identified yet.

3.8.3 Performance Characteristics

This section is organized according to the performance efficiency NFR sub-characteristics documented into ISO 25010: §3.10.3.1 Time behaviour, §3.10.3.2 Resource utilization and §3.10.3.3 Capacity.

3.8.3.1 Time behaviour

Requirements concerning this category have not been identified yet.

3.8.3.2 Resource utilization

Requirements concerning this category have not been identified yet.

3.8.3.3 Capacity

Requirements concerning this category have not been identified yet.

3.8.4 Safety & Security

This section is organized according to the security NFR sub-characteristics documented into ISO 25010: §3.10.4.1 Confidentiality, §3.10.4.2 Integrity, §3.10.4.3 Non-repudiation, §3.10.4.4 Accountability and §3.10.4.5 Authenticity. Furthermore, according to SJU guidelines a dedicated subsection (§3.10.4.6) is provided for safety requirements.

3.8.4.1 Confidentiality

Requirements concerning this category have not been identified yet.

3.8.4.2 Integrity

Requirements concerning this category have not been identified yet.

3.8.4.3 Non-repudiation

Requirements concerning this category have not been identified yet.

3.8.4.4 Accountability

Requirements concerning this category have not been identified yet.

3.8.4.5 Authenticity

Requirements concerning this category have not been identified yet.

3.8.4.6 Safety

Requirements concerning this category have not been identified yet.

3.8.5 Maintainability

This section is organized according to the Maintainability NFR sub-characteristics documented into ISO 25010: §3.10.5.1 Modularity, §3.10.5.2 Reusability, §3.10.5.3 Analysability, §3.10.5.4 Modifiability and §3.10.5.5 Testability.

3.8.5.1 Modularity

Requirements concerning this category have not been identified yet.

3.8.5.2 Reusability

Requirements concerning this category have not been identified yet.

3.8.5.3 Analysability

Requirements concerning this category have not been identified yet.

3.8.5.4 Modifiability

Requirements concerning this category have not been identified yet.

3.8.5.5 Testability

Requirements concerning this category have not been identified yet.

3.8.6 Reliability

This section is organized according to the Reliability NFR sub-characteristics documented into ISO 25010: §3.10.6.1 Maturity, §3.10.6.2 Availability, §3.10.6.3 Fault tolerance and §3.10.6.4 Recoverability.

3.8.6.1 Maturity

Requirements concerning this category have not been identified yet.

3.8.6.2 Availability

Requirements concerning this category have not been identified yet.

3.8.6.3 Fault tolerance

Requirements concerning this category have not been identified yet.

3.8.6.4 Recoverability

Requirements concerning this category have not been identified yet.

3.8.7 Functional block Internal Data Requirements

Requirements concerning this category have not been identified yet.

3.8.8 Design and Construction Constraints

This section is organized according to the Compatibility NFR sub-characteristics documented into ISO 25010 (§3.10.8.1 Co-existence and §3.10.8.2 Interoperability) and according to Portability NFR sub-characteristics (§3.10.8.3 Installability and §3.10.8.4 Replaceability).

3.8.8.1 Co-existence

Requirements concerning this category have not been identified yet.

3.8.8.2 Interoperability

Requirements concerning this category have not been identified yet.

3.8.8.3 Installability

Requirements concerning this category have not been identified yet.

3.8.8.4 Replaceability

Requirements concerning this category have not been identified yet.

3.8.9 Functional block Interface Requirements

Requirements concerning this category have not been identified yet.

4 Assumptions

5 References

[1] Template Toolbox 03.00.00
https://extranet.sesarju.eu/Programme%20Library/SESAR%20Template%20Toolbox.dot

[2] Requirements and V&V Guidelines 03.00.00
https://extranet.sesarju.eu/Programme%20Library/Requirements%20and%20VV%20Guidelines.doc

[3] Templates and Toolbox User Manual 03.00.00
https://extranet.sesarju.eu/Programme%20Library/Templates%20and%20Toolbox%20User%20Manual.doc

[4] EUROCONTROL ATM Lexicon
https://extranet.eurocontrol.int/http://atmlexicon.eurocontrol.int/en/index.php/SESAR

[5] SESAR Definition Phase – Task 2.4.x Milestone 3 – System Architecture (DLT-0612-244-00-10), September 2007

[6] IEEE / MIL Standards

[7] B.04.03-D43 ADD Step 2-3 SWIM & CNS, https://extranet.sesarju.eu/WP_B/Project_B.04.03/Project%20Plan/B%2004%2003-D43-00-ADD-Step%2023_v14.doc, May 2012

[8] 14.01.04.D05 SWIM Technical requirements specification for Step 1 - update 1, https://extranet.sesarju.eu/WP_14/Project_14.01.04/Project%20Plan/14.01.04.D05-SWIM%20technical%20requirements%20specification%20for%20Step%201%20-%20update%201_edn00.02.00.doc, Edition 00.02.00, April 2012

[9] INT14.01.04-Requirements Guidelines, https://extranet.sesarju.eu/WP_14/Project_14.01.04/Other%20Documentation/Execution%20Phase/WA0-ProjectManagement/Guidelines/INT14.01.04-Requirements%20Guidelines.doc, September 2012

[10]P14.01.03-D31, SWIM Architectural Definition for Iteration 2.0, edn 00.02.00, 28/02/2013

[11] P14.01.04 SWIM-TI Technical Use Case Model, https://extranet.sesarju.eu/WP_14/Project_14.01.04/Other%20Documentation/Execution%20Phase/Iteration%202.1/TechnicalActivities/UML%20Model/SWIM-TI-Use%20Cases.eap, *June* 2013

[12] P14.02.02 D03 SWIM Security Context and Needs Analysis Ed 00.02.00

[13]14.01.04.D04 SWIM Interfaces specification for Step 1 - update 1, https://extranet.sesarju.eu/WP_14/Project_14.01.04/Project%20Plan/14.01.04.D04-SWIM%20Interfaces%20specification%20for%20Step%201%20-%20update%201_edn00.02.00.doc, Edition 00.02.00, April 2012

[14] SOA Service Interaction Security Patterns, http://soapatterns.org/masterlist_c.php

[15] Eurocae WG59, ED-133 Flight Object interoperability specification, June 2009

[16] SWIM Action Plan – A15, AG SWIM Analysis (light version)_vclean, v00.00.01, 26/04/2012

[17] P14.1.4 - BU-2. Improve Multicast distribution approach over Europe.

[18] INT14_01_04- BU-2 High Level Use Cases Improve Multicast distribution approach over Europe_1.0_Final.

[19] PENS Task Force F2F MET, https://extranet.sesarju.eu/WP_14/Project_14.01.04/Other Documentation/Execution Phase/Iteration 2.0/BU-2 (Multicast)/1.0/PENS Task Force.

[20] 08.03.02-D03, SWIM Registry Concept of Operations V1, Edition 00.01.05

[21] ISRM v0.4, https://extranet.sesarju.eu/WP_08/Project_08.03.10/Project%20Plan/DEL%2008.03.10.D06_ISRM0.4_Delivery_Report.doc.

[22] ISRM v0.5, https://extranet.sesarju.eu/WP_08/Project_08.03.10/Project%20Plan/DEL%2008.03.10.D07_ISRM0.5_Delivery_Report.docx.

[23] 14.01.04.D40, SWIM Technical Specification 2.0 Edition 00.02.00.

[24] 14.01.03 D33, SWIM Architectural Definition for Iteration 2.1 Edition 00.01.00, December 2013

[25] 14.01.03 D34 SWIM Profiles for Step 2 – Iteration 2.1 Edition 00.01.00, December 2013

[26] 14.02.09 D11, SWIM interoperability guidelines, Ed 00.00.03, 23/03/2012

[27] 14.02.09 D14, V2.0.0 SWIM technical infrastructure definition, Ed 00.02.01, 28/05/2013

[28] ISRM 1.0 https://extranet.sesarju.eu/WP_08/Project_08.03.10/Project%20Plan/DEL%2008.03.10.D09_ISRM1.0_Delivery_Report.doc

[29]14.01.04.D41-002, SWIM-TI Public Key Infrastructure Technical Specification 2.1 Edition 00.02.00, February 2014

[30]14.01.04.D41-003, SWIM-TI Bridge Certification Authority Technical Specification 2.1 Edition 00.02.00, February 2014

[31]14.01.04.D41-004, SWIM-TI Run-Time Registry Technical Specification 2.1 Edition 00.02.00, February 2014

[32]14.01.04.D41-006, SWIM-TI Blue Profile Technical Specification 2.1 Edition 00.02.00, February 2014

[33]14.01.04.D41-007, SWIM-TI Purple Profile Technical Specification 2.1 Edition 00.02.00, February 2014

[34]14.01.03 D32 SWIM Profiles for Step 2 – Iteration 2.0

[35]14.02.09-D13 SWIM Technical Infrastructure V1.1.0 Verification Report, Ed 00.01.66, 11/06/2012

[36]14.02.09-D21 SWIM TI V2.0.0 Verification Plan, Ed 00.01.01, 24/06/2013

5.1 Use of copyright / patent material /classified material

N/A.

5.1.1 Classified Material

N/A.

Appendix A SWIM-TI Technical Use Cases

In this appendix technical use cases, driving 14.01.04 and 14.01.03 Iteration 2.1 activities, are provided. These represent key artefacts aiming at providing a context and target concepts concerning improvements activities carried on during Iteration 2.1.
The current set of SWIM-TI Use Cases covers Security, Performance and Scalability aspects. Furthermore composite Use Cases have been defined to describe how relevant FBs work together to enable such ATM information exchange. The new UCs provided in TS 2.1 are currently into the " Sandbox" folder of the model (for each contributing partner a dedicated sub-folder is provided).

P14.01.04 SWIM-TI Technical Use Case Model is available on the SJU extranet by following this link:https://extranet.sesarju.eu/WP_14/Project_14.01.04/Other%20Documentation/Execution%20Phase/Iteration%202.1/TechnicalActivities/UML%20Model/SWIM-TI-Use%20Cases.eap. The model includes also textual description for each use case.

In order to simplify the reading/review of the Use Cases, the UML model has been also exported into HTML. The archive including this HTML report is available on the SJU extranet by following this link: https://extranet.sesarju.eu/WP_14/Project_14.01.04/Other%20Documentation/Execution%20Phase/Iteration%202.1/TechnicalActivities/UML%20Model/SWIM-TI-Use%20Cases-HtmlReport.zip.

Appendix B Deleted SWIM-TI Requirements

In this appendix are provided requirements which have been deleted (status set to <Deleted>). The rational for deleting these requirements is a) the requirement is no more applicable and/or b) the requirement has been rewritten according to 14.01.04 progress.

Identifier	REQ-14.01.04-TS-0011.0010
Requirement	The SWIM-TI shall provide the ability to store and update Service SLA agreements established between service providers and consumers.
Applicable SWIM Profiles	Blue Profile, Yellow Profile

[REQ]

Identifier	REQ-14.01.04-TS-0810.0001
Requirement	Pan European Network Service (PENS) network shall provide IPv6 support.
Title	PENS IPv6 support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context, the large number of interconnected systems, performance and Quality of Service (QoS) the adoption of IPv6 at PENS level is needed.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-1	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0010
Requirement	Pan European Network Service (PENS) network shall provide IP routing.
Title	PENS IP routing support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed

	systems interconnected at network level using the PENS. Taking into account the overall context and the large number of interconnected systems generally belonging to several different IP networks the support of IP routing at PENS level is needed.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-2	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0020
Requirement	Pan European Network Service (PENS) network shall allow to use Transfer Control Protocol (TCP).
Title	PENS TCP support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the large number of interconnected systems which need to exchange information in efficient and reliable manner, the support of TCP protocol at PENS level is needed.
Category	<Design><Reliability>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-3	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0030
Requirement	Pan European Network Service (PENS) network shall provide encryption capabilities.
Title	PENS encryption support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data for security reasons encryption and decryption techniques support at PENS level is needed.
Category	<Design><Security>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-12	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0040
Requirement	Pan European Network Service (PENS) network shall provide IPv4 support.
Title	PENS IPv4 support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context, the large number of interconnected systems generally belonging to several different networks adoption of IPv4 at PENS level is needed.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>

<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-4	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0090
Requirement	Pan European Network Service (PENS) network shall provide a bandwidth of 1 Mb/s.
Title	PENS EAD B2B bandwidth
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context, the large number of interconnected systems and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth of at least 1 Mb/s at PENS level is needed.
Category	<Design><Performance>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-10	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0150
Requirement	Pan European Network Service (PENS) network shall provide a minimum bandwidth of 1 Mb/s.
Title	PENS EAD B2B bandwidth
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context, the large number of interconnected systems and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth of at least 1 Mb/s at PENS level is needed.
Category	<Design><Performance>
Validation Method	

Verification Method	<Review of Design>
Applicable SWIM Profiles	<Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-10	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0100
Requirement	Pan European Network Service (PENS) network shall provide a peak bandwidth of 10 Mb/s.
Title	PENS EAD B2B bandwidth peak
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the large number of interconnected systems, although and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth higher than 10 Mb/s at PENS level is not needed.
Category	<Design><Performance>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-11	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0810.0101
Requirement	Pan European Network Service (PENS) network shall provide a minimum peak bandwidth of 10 Mb/s.
Title	PENS EAD B2B bandwidth peak
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the large number of

	interconnected systems, although and the need in some cases (e.g. mission critical application) of transmitting information in time-sensitive manner a bandwidth higher than 10 Mb/s at PENS level is not needed.
Category	<Design><Performance>
Validation Method	
Verification Method	<Review of Design>
Applicable SWIM Profiles	<Yellow Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-PENS-11	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	15.02.10	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0060
Requirement	The SWIM Messaging capability shall allow to subscribe for data publications according to the Publish/Subscribe exchange pattern.
Title	Support of the Subscription functionality
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Publish-Subscribe. In order to support this specific MEP, it is required that the Messaging capability allows users applications to subscribe for a given type of published data. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-7	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A

<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0070
Requirement	The SWIM Messaging capability shall allow to unsubscribe a previous subscription according to the Publish/ Subscribe exchange pattern.
Title	Support of the Un-subscription functionality.
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Publish-Subscribe. In order to support this specific MEP, it is required that the Messaging capability allows users applications to unsubscribe for a given type of published data. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-8	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0080
Requirement	The SWIM Messaging capability shall allow to publish data according to the Publish/Subscribe exchange pattern.
Title	Support of the Publish functionality
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange

	Patterns) including Publish-Subscribe. In order to support this specific MEP, it is required that the Messaging capability allows users applications to publish a given type of data. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-9	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0110
Requirement	The SWIM Messaging capability shall allow to invoke a service provider according to the Request/Response exchange pattern.
Title	Support of the service invocation functionality for the Request-Response pattern
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Request-Response. According to this specific MEP, the Messaging capability shall allow two entities, interacting according to the Request-Response, to exchange messages representing “service request/invocation message” (for requesting/consumer entity) and “service response message” (for providing entity). On consumer side, the invocation of a service, provided by another entity, consists in sending a specific “request message”. Therefore, in order to support this specific MEP, it is required that the Messaging capability allows users applications playing the role of requesters to send “request/invocation messages”. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM

	Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-13	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0120
Requirement	The SWIM Messaging capability shall allow to expose services that can be invoked by services consumers in a Request/Response exchange pattern.
Title	Support of the service exposure functionality for the Request-Response pattern.
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Request-Response. According to this specific MEP, the Messaging capability shall allow two entities, interacting according to the Request-Response, to exchange messages representing “service request/invocation message” (for requesting/consumer entity) and “service response message” (for providing entity). On provider side a specific service is exposed allowing requesting entities to consume it according to the Request-Response MEP. Therefore, in order to support this specific MEP, it is required that the Messaging capability allows users applications playing the role of service provider to expose services. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>

Validation Method	
Verification Method	<Test>
Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-14	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0130
Requirement	The SWIM Messaging capability shall inform the service consumer about errors reported by the service provider during a Request/Response interaction.
Title	Application Errors reporting for the Request-Response pattern
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Request-Response. According to this specific MEP, the Messaging capability shall allow two entities, interacting according to the Request-Response, to exchange messages representing “service request/invocation message” (for requesting/consumer entity) and “service response message” (for providing entity). On provider side a specific service is exposed allowing requesting entities to consume it according to the Request-Response MEP. On the other hand, on consumer side, the invocation of a service, provided by another entity, consists in sending a specific “request message”. The provider entity receives the request from the consumer and replies with a response message representing the result of the service execution or an error. Therefore, in order to support this specific MEP, it is required that the Messaging capability is able to report to the requesting entities the response messages including those representing errors reported by provider entities. Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>

Applicable SWIM Profiles	<Blue Profile><Yellow Profile><Purple Profile>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-15	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-90	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0131
Requirement	The SWIM Messaging capability shall inform the service consumer about network errors detected during a Request/Response interaction.
Title	Network Errors reporting for to the Request-Response pattern
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Request-Response. According to this specific MEP, the Messaging capability shall allow two entities, interacting according to the Request-Response, to exchange messages representing “service request/invocation message” (for requesting/consumer entity) and “service response message” (for providing entity). On provider side a specific service is exposed allowing requesting entities to consume it according to the Request-Response MEP. On the other hand, on consumer side, the invocation of a service, provided by another entity, consists in sending a specific “request message”. During this interactions (sending request message and providing response message) network errors may occur. The messaging capability shall be able to detect these errors and to report them to consumer entities (i.e. the entities initiating the interaction). Deletion reasons: this requirement has been candidate to be deleted due to the following reasons: - (minor) It refers to SWIM Messaging capability which is now called SWIM Functional Block - (major) What stated by the requirement is implicitly required by requirements referring to that MEP. If further details concerning this corresponding MEP are needed, they are provided as interface and as design constraints requirements.
Category	<Functional>
Validation Method	
Verification Method	<Test>
Applicable SWIM	<Blue Profile><Yellow Profile><Purple Profile>

Profiles	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-19	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-90	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0020
Requirement	The SWIM Messaging capability should allow data compression.
Title	Support of Data Compression Techniques
Status	<Deleted>
Rationale	The Messaging capability is used to enable data exchanges among geographical distributed entities (wide area deployment). Taking into account this deployment view, performance bottlenecks due to sizing aspects (e.g. number of entities, exchange rate, data size, etc.) could impact the overall messaging performance thus it is suggested to support data compression techniques.
Category	<Functional><Performance>
Validation Method	
Verification Method	<Review of Design><Analysis>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-3	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0031
Requirement	The SWIM Messaging capability shall allow to configure data compression on a policy basis.
Title	Support of Data Compression Configurability
Status	<Deleted>
Rationale	According to REQ-14.01.04-TS-0001.0020, the Messaging capability should support data compression techniques. Taking into account that this

	capability is used in different contexts and scenarios having different requirements, it is needed that, when supported, the data compression is policy based. For Step 1 the minimum configurability level is enable/disable data compression. Compression algorithm may or may not only be used for bulk data distributions (e.g. Push messaging or Pub/Sub) to reduce the impact on performance. A message size multiplies by encryption security measures. This triggers in turn the need for a compression algorithm for message exchange even for non-bulk data. It will be needed to compress SOAP messages that are larger than a threshold (by a configurable parameter with a default value); for smaller messages the overhead by compression (i.e. CPU time spent) would be too large. (Refer to Eurocontrol 14.01.02 D04 Ground/Ground Technology & Service Option Survey Step2 for some examples).
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-4	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-0001.0040
Requirement	The SWIM Messaging capability shall support reliable transport layers.
Title	Support of Reliable Transport Layers
Status	<Deleted>
Rationale	The Messaging capability is used to enable data exchanges among geographical distributed entities (wide area deployment). Taking into account this and also that in this deployment data loss at transport layer may occur, it is required to support reliable technologies at transport layer. The reliable transports supported in Step 1 are TCP (Transmission Control Protocol) and DDSI (DDS Interoperability Wire Protocol). The DDSI transport is used only in the Blue Profile).
Category	<Functional><Performance>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-5	<Full>

<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0050
Requirement	The SWIM Messaging capability shall allow to configure Quality of Service policies.
Title	Support of QoS Policies Configurability
Status	<Deleted>
Rationale	The Messaging capability is used to enable the exchanging of different types of data with different QoS requirements. For instance, for some data could be required a reliable delivery whereas the best-effort delivery could be enough for other types of data. Taking into account these considerations, it is required that the messaging capability shall allow to configure properly such QoSs.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-6	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0090
Requirement	The SWIM Messaging capability shall allow durable subscriptions.
Title	Support of Durable Subscription functionality
Status	<Deleted>
Rationale	The Messaging capability supports a durable subscription mechanisms. A durable subscription mechanism saves messages for an inactive subscriber and after the disconnected period, it delivers these saved messages when the subscriber is reconnected. In this way, a subscriber will not lose any messages which arrive while it was disconnected. Note that it has no effect on the behaviour of the subscriber or the messaging system while the subscriber is connected. A connected subscriber acts the same whether its subscription is durable or non-durable. The difference is in how the messaging behaves when the subscriber is disconnected. Some typical use cases for durable subscriptions include - restart of publisher without requiring subscribers to re-subscribe; - restart of a subscriber without re-subscription to avoid multiple subscriptions
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-11	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0100
Requirement	The SWIM Messaging capability shall be scalable for the Publish/Subscribe and Push messaging exchange patterns.
Title	SWIM Messaging scalability
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Publish-Subscribe and Push. In both cases the Messaging capability is used to enable the distribution of several data, having different sizes and publication rate, among a number of geographical distributed entities (wide area deployment). Even if in Step 1 these sizing problems have not been analyzed, it is anyhow required to take into account that the scalability is one of the most important expected property. Furthermore, it is also important to take into account that, depending on specific sizing factors, there are several types of scalability. For instance the scalability can be evaluated increasing the number of subscribers, increasing the number of publishers, increasing the data size or increasing the publication rate. This requirement is also derived from A/G requirement REQ-A15-0011.0016 identified in SWIM Action Plan A15. Deletion reasons: Requirement refers to Messaging Capability which does not exist. Requirement does not refer to MEP codes we identified Requirement is too generic so it is not verifiable.
Category	<Design><Performance>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>

<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-12	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-50	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-350	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Project>	14.02.01	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0140
Requirement	The SWIM Messaging capability shall provide the following metrics for the Publish/Subscribe pattern: ▪ Number of data publications ▪ Time of the last data publication ▪ Number of failed data publications ▪ Number of received data publications ▪ Time of the last received data publication ▪ Number of missing data publications
Title	Statistic Metrics provided for Publish-Subscribe pattern.
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Publish-Subscribe. It represents one of the most important capabilities and, in order to support monitoring activities, it is needed that it supports the reporting of such metrics.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-17	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0150
Requirement	The SWIM Messaging capability shall provide the following metrics for the Request/Response pattern: ▪ Number of Requests ▪ Time of the Last Request ▪ Number of Failed Requests

	▪ Number of Successful Requests ▪ Maximum Response Time ▪ Last Response Time
Title	Statistic Metrics provided for the Request-Response pattern
Status	<Deleted>
Rationale	The Messaging capability supports several MEPs (Message Exchange Patterns) including Request-Response. It represents one of the most important capabilities and, in order to support monitoring activities, it is needed that it supports the reporting of such metrics.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-18	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A
<ALLOCATED_TO>	<Functional block>	Purple Profile	N/A

[REQ]

Identifier	REQ-14.01.04-TS-00**01**.0001
Requirement	The SWIM Messaging capability shall be compliant with the following interoperability standards: ▪ SOAP 1.1 over HTTP 1.1. ▪ SOAP 1.2 over HTTP 1.1. ▪ XML over HTTP 1.1. ▪ DDS Real Time Publish Subscribe Protocol (DDS Interoperability Wire Protocol version 2.1). ▪ WS-Notification ▪ WS-Security ▪ UDDI 3.01
Title	Interoperability Standards Compliance List
Status	<Deleted>
Rationale	Messaging represents a core SWIM-TI capability that shall allow SWIM Enabled applications, ATM-specific services and other SWIM-TI capabilities and architectural elements to exchange messages. In order to enable a proper interoperability level, the messaging capability shall be compliant with a set of well known and widely used standards. It is important to notice that the Messaging capability can be used in different contexts with different requirements and message exchange patterns. This means that it is not mandatory that a specific Messaging capability implementation is compliant with all of these standards. In fact, in Step1 each SWIM profile supports only a specific subset of these interoperability standards. In particular:

	▪ Blue Profile supports SOAP 1.1 over HTTP 1.1 and DDS Interoperability Wire Protocol version 2.1; ▪ CFMU NOP B2B profile supports SOAP 1.1 over HTTP 1.1 and XML over HTTP 1.1; ▪ EAD B2B profile supports SOAP 1.1/1.2 over HTTP 1.1, WS-Notification, WS-Security, UDDI 3.01 The references for each interoperability standards are provided below: SOAP 1.1: http://www.w3.org/TR/2000/NOTE-SOAP-20000508/ SOAP 1.2: http://www.w3.org/TR/soap12-part0/ HTTP 1.1: http://www.ietf.org/rfc/rfc2616.txt XML: http://www.w3.org/TR/2004/REC-xml11-20040204/ UDDI 3.01: http://www.oasis-open.org/committees/uddi-spec/doc/tcspecs.htm#uddiv3 DDSI 2.1: http://www.omg.org/spec/DDSI/2.1/ WS-Notification:http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsn WS-Security:http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wss Deletion reasons: Requirement refers to Messaging Capability which does not exist. Requirement includes several standards that cannot be mix due to the fact that each profile only covers a sub-set of this requirement. The Requirement has been split in different requirements.
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design><Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<Enabler>	GGSWIM-07	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-52b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26a	<Full>
<SATISFIES>	<Enabler>	GGSWIM-26b	<Full>
<SATISFIES>	<Enabler>	GGSWIM-51b	<Partial>
<SATISFIES>	<ATMS Requirement>	P14.02.09-SWIM-MSG-1	<Full>
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.01	N/A
<ALLOCATED_TO>	<Project>	14.02.09	N/A
<ALLOCATED_TO>	<Functional block>	MSG	N/A
<ALLOCATED_TO>	<Functional block>	Blue Profile	N/A
<ALLOCATED_TO>	<Functional block>	Yellow Profile	N/A

Identifier	REQ-14.01.04-TS-0002.0030
Requirement	The SWIM Security capability cryptographic algorithms and key sizes shall comply with European Network of Excellence in Cryptology (ECRYPT) II recommendations.
	0002.0031.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0020
Requirement	The SWIM Security capability shall support encryption and decryption techniques.
Title	SWIM Technical Infrastructure encryption and decryption support
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality. Encryption and decryption are techniques enabling the expected security properties. 0002.0027.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-250	<Full>

Identifier	REQ-14.01.04-TS-0002.0022
Requirement	SWIM-TI Security Functional Block confidentiality ensuring shall be based on the following information encryption and decryption cryptographic techniques: ▪ XML Encryption ▪ Symmetric, Asymmetric and Hybrid encryption schemas ▪ Triple DES, AES-128 and AES-256 encryption algorithms ▪ Base64 Encoding
	Cryptographic Techniques based SWIM-TI Information Confidentiality Ensuring
	<Deleted>
	Encryption and Decryption techniques/standards are widely adopted and they represent more appropriate solutions supporting information confidentiality.
	<Functional><Security>

	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0028
Requirement	The SWIM Security Functional Block shall allow to apply encryption and decryption techniques at least at one of the following levels: ▪ Message ▪ Network ▪ Transport
Title	Support of Encryption and Decryption at several levels
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality. Encryption and decryption are techniques enabling the expected security properties. These techniques can be applied at different levels: ▪ Message level: these kind of techniques are used to encrypt/decrypt the content (or a part of) of the message. For instance, in a SOAP based communication, only the SOAP body content (or part of) is encrypted/decrypted. ▪ Transport level: these kinds of techniques are used to encrypt/decrypt the complete transport communication. For instance, in a SOAP/HTTPS based communication the whole SOAP is encrypted/decrypted. ▪ Network level: these kind of techniques are used to encrypt/descript communication at network level. For instance, in a SOAP/HTTP based communication, the TCP/IP packets are encrypted/decrypted according to IPSec. It is important to notice that SWIM-TI SEC FB provides only message and transport levels security whereas it supports also network level security relaying on specific feature provided by the network infrastructure.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0021
Requirement	The SWIM Security capability shall allow to apply encryption and decryption techniques at one of the following levels: ▪ Message ▪ Network ▪ Transport
Title	Support of Encryption and Decryption at several levels
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality. Encryption and decryption are techniques enabling the expected security properties. These techniques can be applied at different levels: ▪ Message level: these kind of techniques are used to encrypt/decrypt the content (or a part of) of the message. For instance, in a SOAP based communication, only the SOAP body content (or part of) is encrypted/decrypted. ▪ Transport level: these kinds of techniques are used to encrypt/decrypt the complete transport communication. For instance, in a SOAP/HTTPS based communication the whole SOAP is encrypted/decrypted. ▪ Network level: these kind of techniques are used to encrypt/descript communication at network level. For instance, in a SOAP/HTTP based communication, the TCP/IP packets are encrypted/decrypted according to IPSec. It is important to notice that SWIM-TI SEC FB provides only message and transport levels security whereas it supports also network level security relaying on specific feature provided by the network infrastructure. Deletion reasons: - 0002.0028. - Requirement rewritten clarifying that the three levels could be combined and at least one has to be provided (for a given exchange).
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0221
Requirement	SWIM-TI Security Functional Block Confidentiality Service shall protect information exchanges by enforcing Confidentiality Policy.

	Policy Based SWIM-TI Security Functional Block Confidentiality Service
	<Deleted>
	Not all the information exchanged through the SWIM-TI can be considered sensitive and therefore requiring confidentiality. SWIM-TI will assure confidentiality only for those information exchanges having assigned a Policy requiring it. Refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11].
	<Design><Functional><Security>
	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0220
Requirement	Confidentiality Service shall protect information exchanges by enforcing Confidentiality Policy.
	Policy Based SWIM-TI Security Functional Block Confidentiality Service
	<Deleted>
	Not all the information exchanged through the SWIM-TI can be considered sensitive and therefore requiring confidentiality. SWIM-TI will assure confidentiality only for those information exchanges having assigned a Policy requiring it. Refer to 14.01.04.D40 §2 and P14.01.04 SWIM-TI Use Case UML model [11]. Deletion reasons: - 0002.0221.
	<Design><Functional><Security>
	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0610
Requirement	Encryption and decryption attempts audit shall be policy based.
	Policy Based Encryption and Decryption attempts auditing
	<Deleted>
	According to the Ensure Confidentiality use case [11], encryption and decryption attempts (successfully or not performed) have to be audit or not according to the specific audit policy.
	<Functional><Security>
	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0611
Requirement	SWIM-TI Security Functional Block Audit Service shall audit encryption and decryption attempts according to the specific audit policy.
	Policy Based Encryption and Decryption attempts auditing
	<Deleted>
	According to the Ensure Confidentiality use case [11], encryption and

	decryption attempts (successfully or not performed) have to be audit or not according to the specific audit policy.
	<Functional><Security>
	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0250
Requirement	SWIM-TI Security Functional Block information origin authentication shall be based on the following cryptography techniques: ▪ XML Signature ▪ Symmetric, Asymmetric and Hybrid digital signature schema ▪ Digest algorithm such as SHA1 ▪ Message Authentication Codes algorithm such as HMAC ▪ Signature algorithms such as DSA-SHA1 and RSA-SHA1
	Information signing techniques are widely adopted and they are more appropriate solutions supporting information integrity and authenticity.
	<Functional><Security>
	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0270
Requirement	SWIM-TI Security Functional Block information origin authentication shall protect information exchanges according to the corresponding Policy.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0640
Requirement	Message signature and signature validation attempts audit shall be policy based.
	[11], data signature generation and validation attempts (successfully or not performed) have to be audit or not according to the specific audit policy.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0310
Requirement	The Identity Management Service shall provide capabilities for issuing, validation, renewal, and cancellation of digital identities (security tokens).
	Identity Provider provides issuing, renewal, validation, and cancellation capabilities
	0002.0311

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0840
Requirement	The SWIM Security Identity Management functionality shall support the following tokens: ▪ Username of Identification number (plain text) ▪ X509 certificate (binary) ▪ SAML (XML text document)
	0002.0841

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0081
Requirement	The SWIM Security capability identity management functionality shall be able to support inter-system identity information exchange by: - Secure management, storage and use of security identity information - Provisioning and de-provisioning identity information across trusted security domains - Propagation and mapping identities across trust domains
	0002.0082

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0850
Requirement	The SWIM Security Identity Management functionality shall provide an identity repository / directory in order to store (create/update/delete) the identities.
	0002.0851

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0290
Requirement	The Identity Management service shall offer functionality for the definition of user (and associated attributes), and their classification into groups, roles, and organisations.
	0002.0291

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0300
Requirement	Service provider shall provide information on the type of expected identity security token expected for user authentication and authorization during the service invocation.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0340
Requirement	Identity Provider Federation shall be configurable in order to specify mapping rules enabling different digital identity representations issued by

	different Identity Providers to be assigned to the same subject (authentication).
	Identity Provider Federation Configuration

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0650
Requirement	The SWIM-TI Security capability shall uniquely identify all user and system accessing to SWIM services/data.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0010
Requirement	The SWIM Security capability shall allow to apply different types of security policies at the granularity of a SWIM service.
	0002.0011

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0170
Requirement	The SWIM Security capability shall allow only changes of policies agreed between the various consumers and providers stakeholders.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0680
Requirement	The SWIM-TI security capability shall provide identity authentications based on different mechanisms including: ▪ Username and Password, and/or ▪ Use of Security Tokens
Title	SWIM Technical Infrastructure service provider identity authentication
Status	<Deleted>
Rationale	The Authentication service aims at providing the ability to authenticate identity according to the brokered authentication pattern. This service includes the feature of support of different authentication mechanisms such as user name and password and more complex security tokens. 0002.0682
Category	<Functional><Security>

Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0120
Requirement	The SWIM Security capability shall use X509 certificates for system or machine authentication.
Title	SWIM Technical Infrastructure X509 certificates basis authentication
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required. This requirement assures that X509 certificates are used. 0002.0121
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0660
Requirement	The SWIM-TI Security capability shall provide between service consumer and provider for different federated security system, both the following authentication schemes: - Requestor-provider authentication (mutual authentication) mechanism, and - Only resource requestor authentication
	This requirement is also derived from A/G requirements REQ-A15-0020.0001, REQ-A15-0020.0002 identified in SWIM Action Plan A15. 0002.0661

<SATISFIES>	<ATMS Requirement>	09.19-D03-210	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-220	<Full>
<SATISFIES>	<ATMS Requirement>	09.19-D03-230	<Full>
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>
<SATISFIES>	<Enabler>	AGSWIM-34	<Full>

Identifier	REQ-14.01.04-TS-0002.0110
Requirement	The SWIM Security capability shall allow service consumer authentication based on static username/password mechanism.
	0002.0111

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0670
Requirement	The SWIM-TI security capability shall provide a federated single sign-on and sign-off for access to resources by consumers
Title	SWIM Technical Infrastructure service provider federated access
Status	<Deleted>
Rationale	A brokered authentication relying on a federated identity service for accessing, sharing, managing and federating identity information to provide access control for consumer resources shall be provided in the SWIM-TI security FB. 0002.0671
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0690
Requirement	The SWIM-TI Security Capability shall provide identity authentication policy management (eg. policy creation, validation, update and distribution) for resources that require identity authentication
Title	SWIM Technical Infrastructure service provider identity authentication
Status	<Deleted>
Rationale	Authentication is performed based on the user identification provided with the certificate attached to the request. Certificates constitute the main device utilised by entities participating in a PKI to check authenticity. In a federated security architecture, once the user is authenticated for the resource that requires identity authentication, a request from the user can be forwarded to the resource. 0002.0691
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0440
Requirement	The SWIM-TI security system shall notify a Federated Security System if an entity of the Federated Security System is placed in a blacklist.
	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. SWIM-TI Security System will notify a Federated Security System of a blacklisted entity. This defines some minimal requirements the Authorization Policy shall obey.

	0002.0441

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0451
Requirement	SWIM-TI Security Functional Block shall provide the following mechanisms to release a blacklisted entity: • Automatically after a Policy defined maximum blacklist period • Manually
	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. SWIM-TI Security System needs to provide the appropriate mechanisms to release previously blacklisted entities.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0450
Requirement	The SWIM-TI Security capability shall provide the following mechanisms to release a blacklisted entity: • Automatically after a Policy defined maximum blacklist period • Manually
	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. SWIM-TI Security System needs to provide the appropriate mechanisms to release previously blacklisted entities. 0002.0451

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0430
Requirement	The SWIM-TI Authentication Service shall provide the maximum number of possible authentication attempts for the different Federated Security Systems.
	Authentication blacklists are to be part of SWIM to prevent abuse of authentication attempts. The maximum number of authentications has to be known also by the different federated security systems.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0700
Requirement	The SWIM-TI Security capability shall detect and record failed authentication attempts when the identity of the consumer and/or the authentication information provided by the consumer is invalid.
	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not

	limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. Failed authentication attempts are detected and reported for monitoring or security protection purposes. 0002.0701

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0570
Requirement	SWIM-TI's Authentication Services shall blacklist an entity when the number of failed authentication requests by entities of the same or different Federated Security Systems with the SWIM-TI Security System exceeds the number of authentication attempts specified by SWIM-TI's Authentication Policy.
	Authentication blacklists are to be part of auditing to prevent further authentication attempts by blacklisted entities. This requirement defines when an entity shall be blacklisted after exceeding a certain number of failed authentication attempts.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0390
Requirement	The SWIM-TI Authorization security Policy shall be enforced: ▪ During every information exchange from the SWIM-TI to an external network (e.g. Internet), and ▪ During every information exchange from an external network (e.g. Internet) to the SWIM-TI

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0410
Requirement	SWIM-TI's Authorization Security Policy shall be enforced by the PEP during a demand of authorization request.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0420
Requirement	The SWIM-TI Security capability shall permit a requestor on a Federated Security System to consume a service if and only if its authorization is successful.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0470
Requirement	The SWIM-TI Security capability shall prevent consumption/access to any service/data not covered by a validated Security Authorization policy.
Title	SWIM Technical Infrastructure Security Authorization mandates an applicable authorization policy
Status	<Deleted>
Rationale	Making every consumption/access to be covered by a validated Security policy enforces a mandatory policy based authorization and prevents unauthorized consumption/access by default.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0480
Requirement	The SWIM-TI Security capability shall lock inactive sessions after a Policy defined amount of time, to prevent unauthorized access to the system.
Title	SWIM-TI session timeout locking
Status	<Deleted>
Rationale	Inactive sessions are a potential security breach as they may be used by unauthorized bystanders. Inactive sessions lock on minimizes this risk.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0720
Requirement	SWIM-TI's Authorization Policy shall limit audit record access, modification and deletion to accounts having "Audit Administrator" role.
Title	Audit Records Access restriction
Status	<Deleted>
Rationale	Due to the critical sensitivity of the information managed in SWIM it is necessary that privileged access to this information is kept to a minimum and only to those accounts having an "Audit Administrator" role.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0500
Requirement	The SWIM-TI Security capability shall raise run-time service security alerts to the SWIM Technical Supervision whenever one of the security incidents defined in REQ-14.01.04-TS-0002.0750 occurs.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0510
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after a Demand of Identity and Authentication Information Assertion.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0520
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after a Demand of Data Encryption.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0530
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after a Demand of Confidentiality Assertion.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0540
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after data signature during a Data Origin Authentication process.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0550		
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after signature verification during a Data Origin Authentication process.		
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0560		
Requirement	SWIM-TI's Audit Policy shall be enforced by the PEP after a Demand of Authorization Request.		
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0790		
Requirement	SWIM-TI's Security capability shall alert the SWIM Technical Supervision when the Audit storage space usage reaches the alert levels defined by SWIM-TI's Audit Policy.		
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0800		
Requirement	SWIM-TI's Security capability shall alert the SWIM Technical Supervision when the audit processing fails.		
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0830		
Requirement	SWIM-TI's Security Capability shall log every blacklist release and the mechanism applied for its release: ▪ Automatic after a Policy defined amount of time ▪ Manual (with reason provided for release)		
<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0130
Requirement	The SWIM Security capability shall use certificates digitally signed by a Certification Authority (CA).
Title	Certificates signed by a Certification Authority
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required and those have to be signed by a Certification Authority (CA).
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0131
Requirement	The SWIM Security capability shall trust certificates signed by known Certification Authorities.
Title	Certification of Certification Authorities
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS. Taking into account the overall context and the sensitivity of the exchanged data it is required to guarantee several security properties such as (but not limited to) the information integrity, authorization and confidentiality and service (ATM-specific and Infrastructure services) consumer/provider authentication. For what concerns the authentication, the use of certificates is required and those have to be signed by a Certification Authority (CA). All the CAs have to be trusted in order to certify signed certificates. This is guaranteed proving the certificates of the Certification Authority (top-level certificates).
Category	<Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

[REQ]

Identifier	REQ-14.01.04-TS-0002.0180
Requirement	The SWIM Security capability shall adopt the necessary protective measures to prevent or minimize the impact of hostile acts against ATM facilities, systems and data, including support to measures agreed at national and/or international level.
Title	SWIM Technical Infrastructure data and systems protective measures
Status	<Deleted>
Rationale	The SWIM Technical Infrastructure is used to enable the exchanging of several types of information among several types of geographically distributed systems interconnected at network level using the PENS.

	Taking into account the overall context and the sensitivity of both the exchanged data and systems, it is needed to protect them from external unknown and malicious users. This mainly consists in to identify a set of protective measures that have to be agreed at national and/or international level.
Category	<Functional><Security>
Validation Method	
Verification Method	<Review of Design><Test>

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

Identifier	REQ-14.01.04-TS-0002.0160
Requirement	The SWIM Security capability shall protect the overall SWIM technical infrastructure against overload.

<SATISFIES>	<Enabler>	GGSWIM-59b	<Full>

-END OF DOCUMENT-