European ATM Service Description for the SNOWTAM Service

Document information	
Project Title	Information Service Modelling deliverables
Project Number	08.03.10
Project Manager	NORACON
Deliverable Name	European ATM Service Description for the SNOWTAM Service
Deliverable ID	D65
Edition	00.02.01
Template Version	02.00.02
Task contributors	
DFS, EUROCONTROL, NORACON, NATMIG, FINMECCANICA, FREQUENTIS, THALES, ENAIRE, DSNA, INDRA, SEAC and ENAV	

Abstract

The SNOWTAM service covers the dissemination of standard ICAO SNOWTAM bulletins over SWIM. This service aims therefore at bringing the benefits of increased interoperability via SWIM to the MET and Aeronautical Communities of Interest. Service design has been performed in the context of Service Activity SVA003 entailing Airport Meteorological and Surface Contamination services.

Authoring & Approval

Prepared By - *Authors of the document.*		
Name & Company	**Position & Title**	**Date**
███████ FINMECCANICA	████████	30/05/2016
███████ FREQUENTIS		26/05/2014

Reviewed By - *Reviewers internal to the project.*		
Name & Company	**Position & Title**	**Date**
██████ FINMECCANICA	████████	26/05/2014
██████ EUROCONTROL		26/05/2014
██████ DFS		27/05/2014
█████ DFS		02/05/2016
██████ NATMIG		27/05/2016

Reviewed By - *Other SESAR projects, Airspace Users, staff association, military, Industrial Support, other organisations.*		
Name & Company	**Position & Title**	**Date**
██████ FINMECCANICA	████████	27/05/2014
██████ NORACON		29/05/2014
██████ THALES		29/05/2014
███████ / FINMECCANICA		04/05/2016

Approved for submission to the SJU By - *Representatives of the company involved in the project.*		
Name & Company	**Position & Title**	**Date**
███████ FINMECCANICA	████████	29/05/2014
███████ FREQUENTIS		29/05/2014
██████ EUROCONTROL		29/05/2014
██████ NORACON		01/06/2016
█████ /NORACON		01/06/2016

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

Rational for rejection

Document History

Edition	Date	Status	Author	Justification
00.00.01	26/05/2014	Draft	████	New document
00.00.02	26/05/2014	Revised Draft		Addressed SVA partners' review
00.01.00	29/05/2014	Final		T6 external member's review, minor fixings after verification process.
00.01.01	09/09/2014	Final		Updated to reflect SJU assessment

00.01.01	30/11/2015	Final		Changed delivery ID
00.02.00	30/05/2016	Final		Updated to ISRM Foundation 00.07.00 and based on requirements for ISRM 2.0
00.02.01	20/07/2016	Final update		Updated according to 08.03.10-D65_SJU_Assessment_report_08.03.10 _response

Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

Table of Contents

List of tables

List of figures

Executive summary

This document is the result of the "Service Design" step of the B.4.3 Working Method on Services for the SNOWTAM Service. The document provides a comprehensive logical specification for system engineers on how to realize the dissemination of MET data over SWIM.

The SNOWTAM service covers the dissemination of standard ICAO SNOWTAM bulletins over SWIM to a wide range of subscribing ATM users. This service aims therefore at bringing the benefits of increased interoperability via SWIM to the MET and Aeronautical Communities of Interest. Service design has been performed in the context of the SESAR Service Activity "SVA003" entailing Airport Meteorological and Surface Contamination services.

SVA003 has happened in the frame of the SESAR MET Coordination Group and has seen the participation of a good number of different partners, both Operational and System, from OFA5.1.1 (WP6 and WP12) and WP11.2.

Edition 1.0 for this SDD first published as part of ISRM 1.3. It was then updated to 1.1. for ISRM 1.4 and used as reference for SESAR validation exercise EXE-06.03.01-VP-669 (SESAR R5). This edition wraps all quality improvements for delivery with the final SESAR ISRM 2.0.

1 Introduction

1.1 Purpose of the document

The purpose of this SDD is to provide a complete logical description of the SNOWTAM Service, its operational context, its basic architectural features, its dynamical aspects, its operations and the data provided. All these aspects are presented as model views according to the ISRM UML EATMA Profile, which organize knowledge about a service into views inspired by the NAF Framework.

This SDD serves as a complement to a model based description and supports the configuration management process by providing well-defined baselines.

The logical service model presented in this SDD edition is part of the ISRM 2.0 release, and provides a blueprint which service developers must follow in order to create SWIM-Compliant implementations of the SNOWTAM Service.

The service presented will be a part of the Service Portfolio. The Service Portfolio presents all services that are available or are planned to become available at a high level.

1.2 Intended readership

SESAR Deployment Manager, SCG, the OPS and SYS projects participating in the SVA003 Team, Service Architects, Information Architects, System Engineers and Developers in pursuing architecting, design and development activities.

1.3 Inputs from other projects

The main inputs are the OFA 5.1.1 OSED ([1] and [2]) and the ICAO Annex 3.

1.4 Glossary of terms

N/A

1.5 Acronyms and Terminology

1.5.1 Acronyms

Term	Definition
ADD	Architecture Description Document
ATM	Air Traffic Management
CC	Capability Configuration
EATMA	European Air Traffic Management Architecture
E-ATMS	European Air Traffic Management System
FAA	Federal Aviation Administration
IER	Information Exchange Requirement

founding members

Term	Definition
ISRM	Information Service Reference Model
MG	ISRM Modelling Guidelines
NAF	NATO Architecture Framework
NSOV	NATO Service Oriented View
NOV	NATO Operational View
NSV	NATO System View
OSED	Operational Service and Environment Definition
QoS	Quality of Service
SAR	Service Allocation Report
SCG	Service Coordination Group
SDD	Service Description Document
SESAR	Single European Sky ATM Research Programme
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.
SIR	Service Identification Report
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SWIM	System Wide Information Management
UML	Unified Modelling Language
V&V	Validation and Verification
WSDL	Web Services Definition Language
XSD	XML Schema Definition

1.5.2 Terminology

Term	Definition	Source
Capability	Capability is the ability of one or more of the enterprise's resources to deliver a specified type of effect or a specified course of action to the enterprise stakeholders.	EATMA Guidance Material [13]

Term	Definition	Source
Capability Configuration	A Capability Configuration is a combination of Roles and Systems configured to provide a Capability derived from operational and/or business need(s) of a stakeholder type.	EATMA Guidance Material [13]
Node	A logical entity that performs Activities. Note: nodes are specified independently of any physical realisation.	EATMA Guidance Material [13]
Service	The contractual provision of something (a non-physical object), by one, for the use of one or more others. Services involve interactions between providers and consumers, which may be performed in a digital form (data exchanges) or through voice communication or written processes and procedures.	EATMA Guidance Material [13]
Service function	A type of activity describing the functionality of a Service.	EATMA Guidance Material [13]
Service interface	The mechanism by which a service communicates	EATMA Guidance Material [13]

2 Service identification

Name	SNOWTAM
ID	{BF398C97-F92A-41bd-B64B-E274D101094B}
Version	2.0
Keywords	SNOWTAM, NOTAM, Surface contamination.
Architect(s)	██████████████ FINMECCANICA

Lifecycle status	Date	Reference
Identified	12/12/2013	See reference [3]
Allocated	21/02/2014	See reference [4]
Designed	31/05/2016	This document
Validated	03/03/2016	See reference [16]
IOC	*Date for Initial Operational Capability*	*Reference to technical enabler hosting the service in the ATM master plan*
FOC	*Date for Full Operational Capability*	*Reference to technical enabler hosting the service in the ATM master plan*

3 Operational and Business context

The SNOWTAM is special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format. It is formatted according to ICAO Annex 15 provisioning [14].

The requirements for the provision of a service for dissemination of the SNOWTAM bulletins of interest for airport operations and the full business and operational context for this service is given by the P06.05.04 OSED[1][2]. It is also been described in the SVA003 Service Identification Report (SIR) [3] and has been elaborated further in the SVA003 Service Allocation Report (SAR) [4]. These documents in particular have already covered:

- a description of what ATM goals and problems the service addresses;
- business level capabilities that the service will realise;
- the positioning of the service into the SESAR technical Architecture (ADD and TADs);
- the link to Operational Improvements;
- the list of IERs, operational and non-functional requirements from source documents;
- the relevance to the SESAR MET Coordination Group, and the linkage to the "2013 MET Issue Resolution";
- the prototyping and validation triggers from within the Programme.

3.1 Information Exchange Requirements
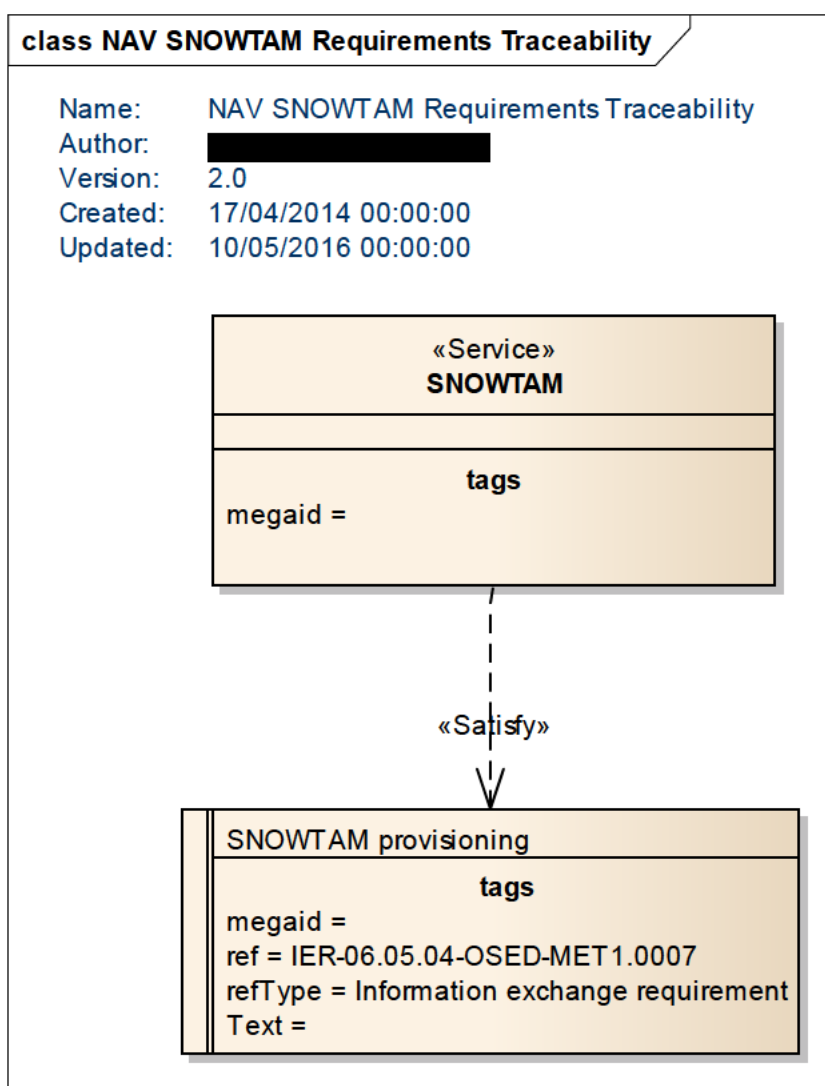
Figure 1: NAV SNOWTAM Service Requirements Traceability IER Diagram

3.2 Other Requirements

3.2.1 Non-Functional Requirements

N/A.

3.2.2 Relevant Industrial Standards

N/A.

3.2.3 Nodes

The EATMA nodes specified in the service are shown in the NOV-2 SNOWTAM Service To Nodes Mapping diagram below:
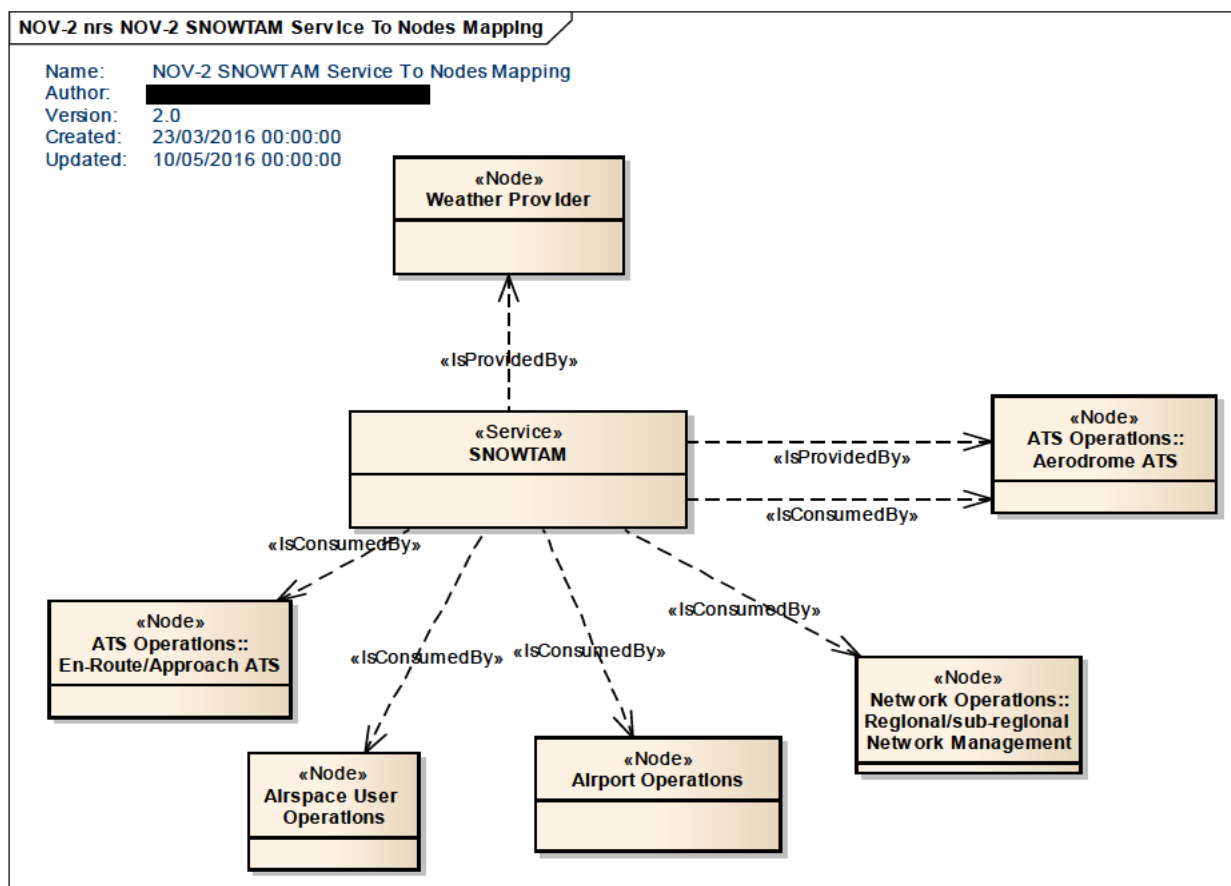
Figure 2: NOV-2 SNOWTAM Service to Nodes Mapping diagram

4 Service overview

4.1 Service Taxonomy

The service taxonomy is described in the ISRM Service Portfolio document [5].

4.2 Service Levels (NfRs)

N/A.

4.3 Service Functions and Capabilities
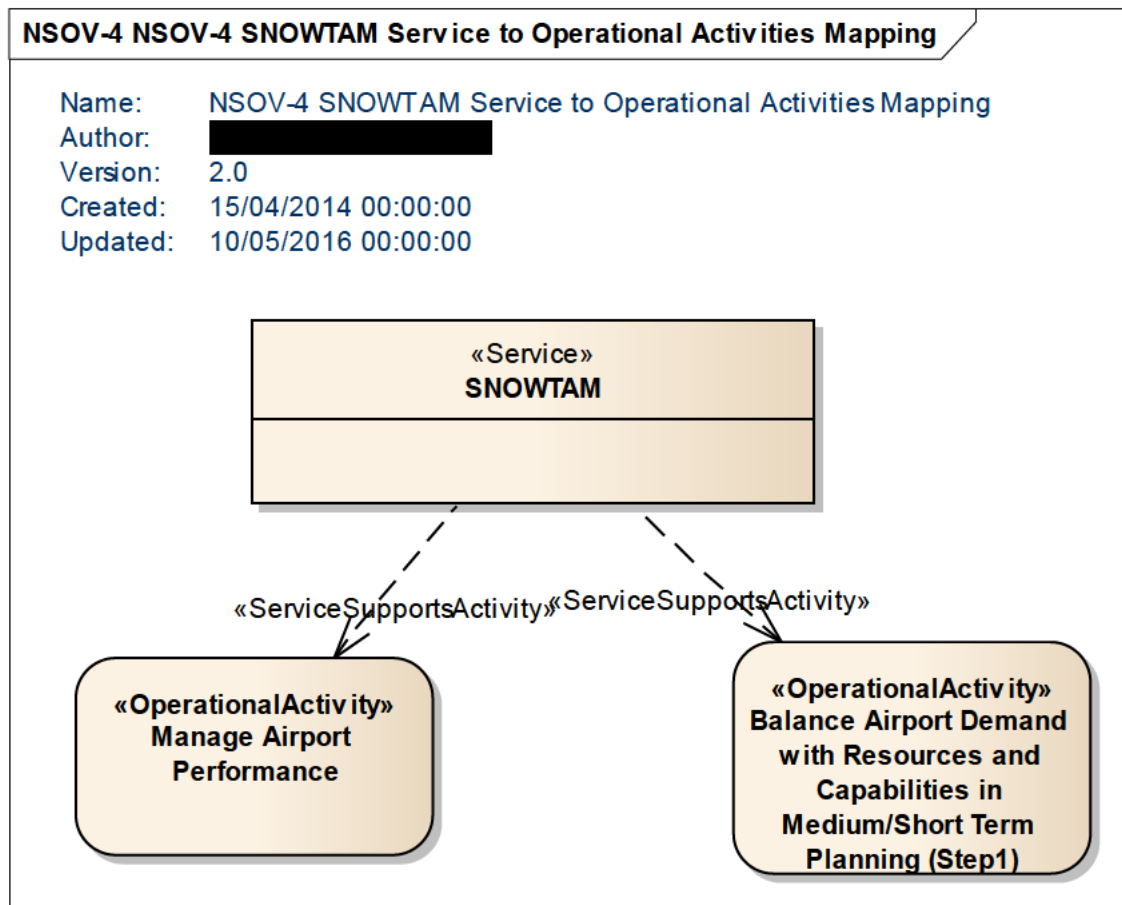
Figure 3: NSOV-4 SNOWTAM Service to Operational Activities Mapping diagram

For the service to capabilities mapping, see the NSOV-2 Service Interface Definition diagram in Section 4.4.

4.4 Service Interfaces

The service is based on a single pub/sub interface. The SNOWTAMPublisher service interface definition allows the consumer to subscribe or unsubscribe to the data, while the SNOWTAMSubscriber service interface definition allows the service provider to publish the message containing the data. The messages for subscription and unsubscription are only logical abstract wrappers, since the actual management of the publication mechanism is done at the level of the SWIM Technical Infrastructure.

Name: NSOV-2 SNOWTAM Interface Definition
Author:
Version: 2.0
Created: 23.03.2016 00:00:00
Updated: 26.05.2016 00:00:00
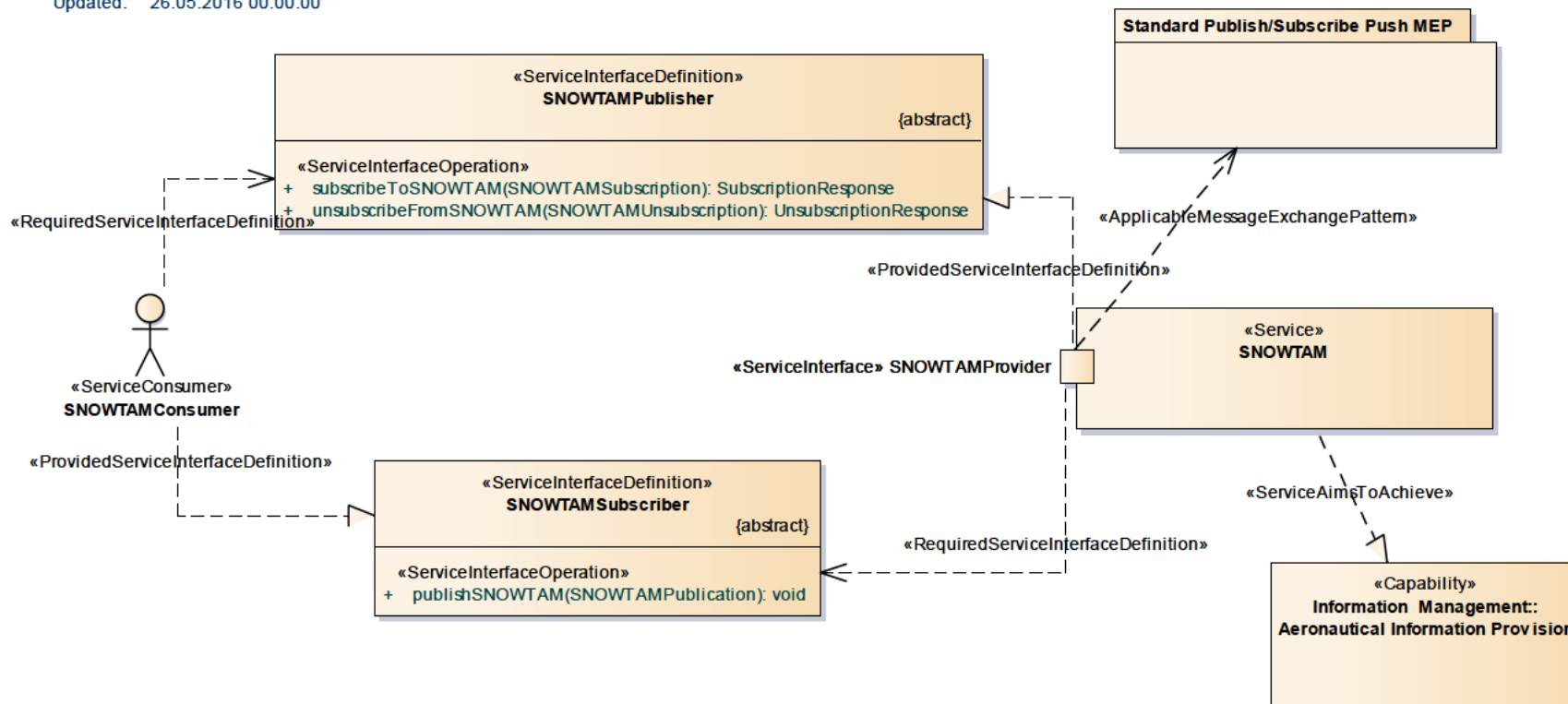
Figure 4: NSOV-2 SNOWTAM Service Interface Definition diagram

ServiceInterface	ServiceInterfaceDefinition	ServiceInterfaceOperation	Role
SNOWTAMProvider	SNOWTAMPublisher	subscribeToSNOWTAM	provided
SNOWTAMProvider	SNOWTAMPublisher	unsubscribeFromSNOWTAM	provided
SNOWTAMProvider	SNOWTAMSubscriber	publishSNOWTAM	required

Table 1: Service Interfaces

5 Service interface specifications

5.1 Service Interface SNOWTAMProvider

This is the only interface for this service. It implements the Standard Publish/Subscribe Push message exchange pattern, and exposes two service interface definitions, one for the provider and one for the consumer side.

5.1.1 Service Interface Definition SNOWTAMPublisher

This interface definition enables a consumer to subscribe or unsubscribe from the provision of the service message.

5.1.1.1 Operation subscribeToSNOWTAM

The service operation enables the service consumer to subscribe to a particular SNOWTAM bulletin.

5.1.1.1.1 Operation Functionality

The service operation enables the consumer to select the desired airport for which he desires a SNOWTAM bulletin.

5.1.1.1.2 Operation Parameters

The operation is modelled with a return type representing the generic outcome for a subscription.

Element Name	Author	Notes
SNOWTAMSubscription		Message for the Subscription
SubscriptionResponse		Reply to the subscription operation.

Table 2: Payload elements for the subscribeToSNOWTAM operation

5.1.1.2 Operation unsubscribeFromSNOWTAM

The service operation enables the service consumer to unsubscribe from the service.

5.1.1.2.1 Operation Functionality

The service operation enables the consumer to select the desired airport for which he does not want SNOWTAM bulletins anymore.

5.1.1.2.2 Operation Parameters

The operation is modelled with a return type representing the generic outcome for an unsubscription.

Element Name	Author	Notes
SNOWTAMUnsubscription		Message for the Unsubscription
UnsubscriptionResponse		Reply to the unsubscription operation.

Table 3: Payload elements for the unsubscribeFromSNOWTAM operation

5.1.2 Service Interface Definition SNOWTAMSubscriber

This interface definition enables the provider to publish the SNOWTAM.

5.1.2.1 Operation publishSNOWTAM

The service operation enables the service consumer to receive a notification for a new SNOWTAM which he has subscribed to.

5.1.2.1.1 Operation Functionality

The service operation simply enables the consumer to access a pre-subscribed new SNOWTAM available from the MET provider.

5.1.2.1.2 Operation Parameters

The operation is modelled without a return type. The operation has a single input parameter SNOWTAMPublication which represents the full service payload.

Element Name	Author	Notes
SNOWTAMPublication		Publication message

Table 4: Payload element for the publishSNOWTAM operation

The relevant EntityItems with attributes and relationships are rendered in Figure 5 below. Details for the EntityItems and the tracing to AIRM are provided in Table 5 below. The tagged values show the linked AIRM class.
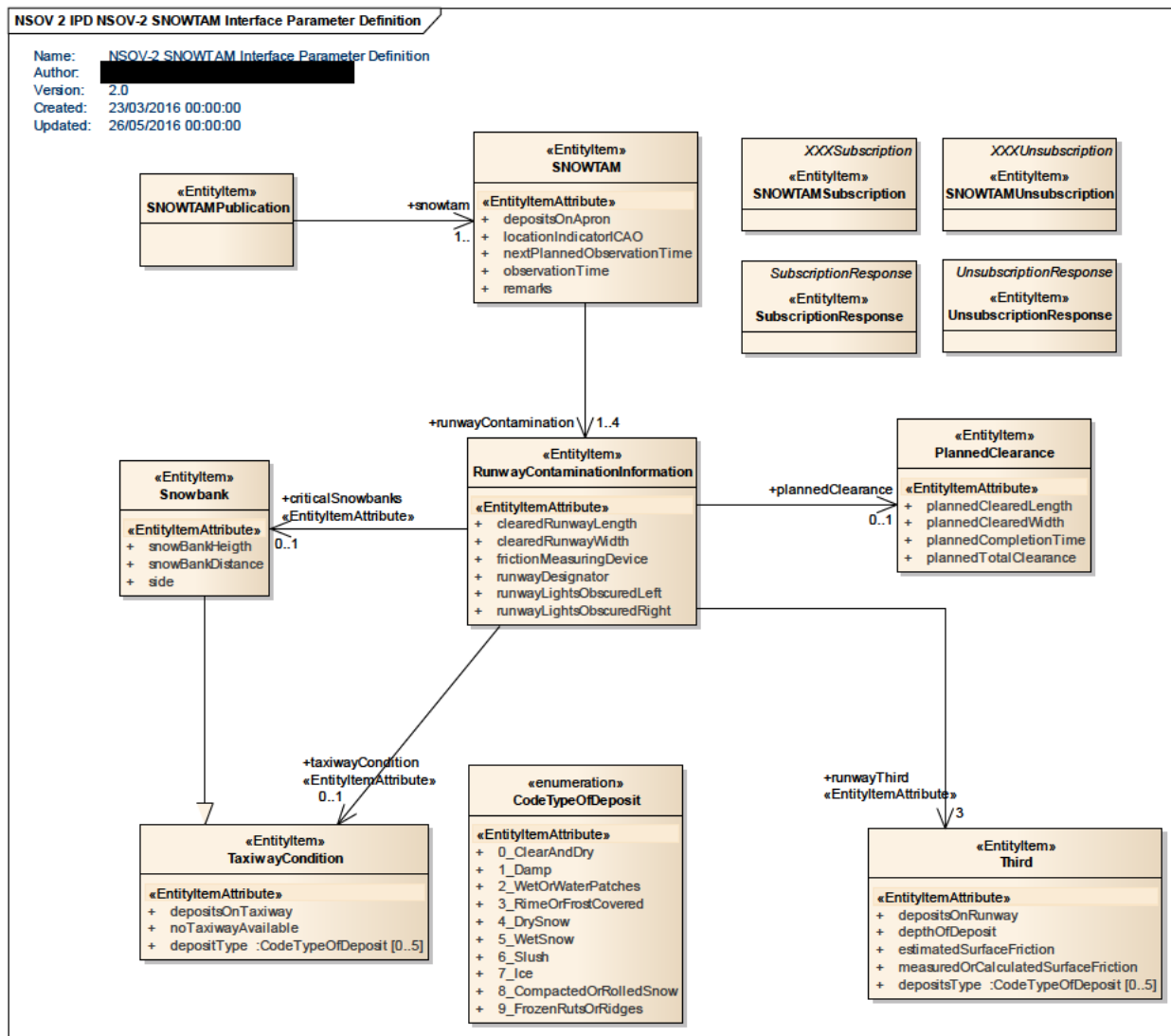
Figure 5: NSOV-2 SNOWTAM Service Interface Parameter Definition diagram

Element Name		Author	Notes	
CodeTypeOfDeposit		███████████	An enumeration of substance types, which can contaminate airport/heliport movement areas.	
	Attribute Name	**Type**	**Notes**	
	0_ClearAndDry			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@CLEAR_AND_DRY	
	Attribute Name	**Type**	**Notes**	
	1_Damp			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@DAMP	
	Attribute Name	**Type**	**Notes**	
	2_WetOrWaterPatches			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@WET	
	Attribute Name	**Type**	**Notes**	
	3_RimeOrFrostCovered			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@RIME_OR_FROST_COVERED	
	Attribute Name	**Type**	**Notes**	
	4_DrySnow			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@DRY_SNOW	
	Attribute Name	**Type**	**Notes**	
	5_WetSnow			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@WET_SNOW	
	Attribute Name	**Type**	**Notes**	
	6_Slush			
		Tagged Value Name	**Value**	
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@SLUSH	
	Attribute Name	**Type**	**Notes**	

	7_Ice			
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@ICE	
	Attribute Name	**Type**	**Notes**	
	8_CompactedOrRolledSnow			
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@COMPACTED_OR_ROLLED_SNOW	
	Attribute Name	**Type**	**Notes**	
	9_FrozenRutsOrRidges			
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@FROZEN_RUTS_OR_RIDGES	

Element Name		**Author**	**Notes**	
PlannedClearance			Information about further planned clearance.	
	Attribute Name	**Type**	**Notes**	
	plannedClearedLength		Item L according to ICAO Annex 15, Appendix 2.	
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@furtherClearanceLength	
	Attribute Name	**Type**	**Notes**	
	plannedClearedWidth		Item L according to ICAO Annex 15, Appendix 2.	
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@furtherClearanceWidth	
	Attribute Name	**Type**	**Notes**	
	plannedCompletionTime		Item M according to ICAO Annex 15, Appendix 2.	
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@furtherClearanceTime	
	Attribute Name	**Type**	**Notes**	
	plannedTotalClearance		Item L according to ICAO Annex 15, Appendix 2.	
	Tagged Value Name		**Value**	
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Subje	

			ctFields:AirTrafficOperations:AerodromeOperations:Surface Contamination:RunwayContamination@furtherClearanceLength

Element Name		Author	Notes
RunwayContaminationInformation		████████████	Contains the SNOWTAM items for one dedicated runway.

	Attribute Name	Type		Notes
	clearedRunwayLength			Item D according to ICAO Annex 15, Appendix 2.

		Tagged Value Name	Value
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:Surface Contamination:RunwayContamination@clearedLength

	Attribute Name	Type		Notes
	clearedRunwayWidth			Item E according to ICAO Annex 15, Appendix 2.

		Tagged Value Name	Value
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:Surface Contamination:RunwayContamination@clearedWidth

	Attribute Name	Type		Notes
	frictionMeasuringDevice			Item H according to ICAO Annex 15, Appendix 2. Friction measurements on each third of the runway and friction measuring device. Measured or calculated coefficient (two digits) or, if not available, estimated surface friction (single digit) in the order from the threshold having the lower runway designation number. Insert a code 9 when surface conditions or available friction measuring device do not permit a reliable surface friction measurement to be made. Use the following abbreviations to indicate the type of friction measuring device used: BRD Brakemeter-Dynometer GRT Grip Tester MUM Mu-meter RFT Runway friction tester SFH Surface friction tester (high pressure tire) SFL Surface friction tester (low pressure tire) SKH Skiddometer (high pressure tire) SKL Skiddometer (low pressure tire) TAP Tapley meter If other equipment used specify in plain language.

		Tagged Value Name	Value
		CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:Surface Contamination:SurfaceContamination@frictionDevice

	Attribute Name	Type		Notes
	runwayDesignator			Item C according to ICAO Annex 15,

			Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Runway@designator	

	Attribute Name	**Type**	**Notes**
	runwayLightsObscuredLeft		Item K according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@obscuredLightsSide	

	Attribute Name	**Type**	**Notes**
	runwayLightsObscuredRight		Item K according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@obscuredLightsSide	

Element Name		**Author**	**Notes**
SNOWTAM		███████	A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

	Attribute Name	**Type**	**Notes**
	depositsOnApron		Item R according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType	

	Attribute Name	**Type**	**Notes**
	locationIndicatorICAO		Item A according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO	

	Attribute Name	**Type**	**Notes**
	nextPlannedObservationTime		Item S according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:TemporalEnabledEntity	

	Attribute Name	**Type**	**Notes**
	observationTime		Item B according to ICAO Annex 15, Appendix 2.

	Tagged Value Name	**Value**	

	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:TemporalEnabledEntity
	Attribute Name	**Type**	**Notes**
	remarks		Item T according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:LinguisticNote

Element Name	**Author**	**Notes**
SNOWTAMPublication	███████████	Publication message

Element Name	**Author**	**Notes**
SNOWTAMSubscription	███████████	Message for subscription

Element Name	**Author**	**Notes**
SNOWTAMUnsubscription	███████████	Message for unsubscription

Element Name	**Author**	**Notes**
Snowbank	███████████	Information about snowbanks beside a runway or taxiway.

	Attribute Name	**Type**	**Notes**
	snowBankHeigth		Height of the snow bank in centimeters. Item J according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@depth
	Attribute Name	**Type**	**Notes**
	snowBankDistance		Distance from the edge of runway in meters. Item J according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@distance
	Attribute Name	**Type**	**Notes**
	side		Item J according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@side

Element Name	**Author**	**Notes**
SubscriptionResponse	███████████	Reply to the subscription operation.

Element Name	**Author**	**Notes**
TaxiwayCondition	███████████	Information about conditions of taxiways.

	Attribute Name	**Type**	**Notes**
	depositsOnTaxiway		Item N according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**

	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType
	Attribute Name	**Type**	**Notes**
	noTaxiwayAvailable		Item N according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@isTaxiwayAvailable
	Attribute Name	**Type**	**Notes**
	depositType	CodeTypeOfDeposit	The type of contaminating substance on the movement area surface.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		CLDM_Out_of_scope

Element Name		**Author**	**Notes**
Third		███████████	Contains the SNOWTAM items for one third of a runway.
	Attribute Name	**Type**	**Notes**
	depositsOnRunway		Item F according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType
	Attribute Name	**Type**	**Notes**
	depthOfDeposit		Item G according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@depth
	Attribute Name	**Type**	**Notes**
	estimatedSurfaceFriction		Item H according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeFrictionEstimateType
	Attribute Name	**Type**	**Notes**
	measuredOrCalculatedSurfaceFriction		Item H according to ICAO Annex 15, Appendix 2.
	Tagged Value Name		**Value**
	CLDMSemanticTrace		urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@frictionCoefficient
	Attribute Name	**Type**	**Notes**
	depositsType	CodeTypeOfDeposit	The type of contaminating substance on the movement area surface.
	Tagged Value Name		**Value**

CLDMSemanticTrace	CLDM_Out_of_scope	
Element Name	**Author**	**Notes**
UnsubscriptionResponse		Reply to the unsubscribtion operation.

Table 5: Payload tracing to AIRM

6 Service dynamic behaviour

The interface offers three operations, namely to subscribe/unsubscribe from the publication of the data, and to notify the consumer on the data being available. The service dynamic behaviour can be shown using the NSOV-5c Service-Event diagram created for the purpose. The following diagram shows that the interaction envisaged between provider and consumer is an asynchronous publish/subscribe "push" type MEP.
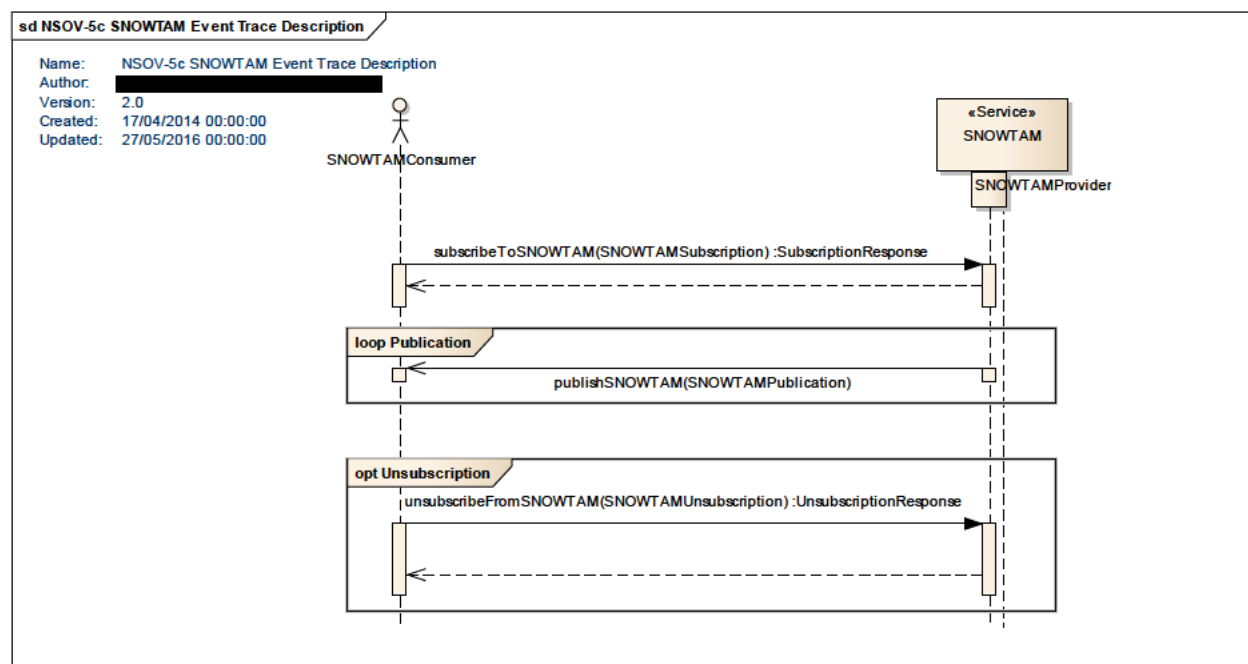
6.1 Service Interface SNOWTAMProvider

Figure 6: NSOV-5c SNOWTAM Service Event Trace Description

7 Service provisioning (optional)

Service prototyping has been performed in the context of MET-related validation exercise and EXE-06.03.01-VP-669 in SESAR. The technology so far identified for the technical interface is the OASIS standard Web Service Notification and belongs to the WP14 Yellow Profile. The detailed description of the technical service contract and service implementation for this exercise is part of technical deliverables by project 12.7.5.

8 Validation and Verification

8.1 Verification

Verification was performed according to the ISRM Rulebook [11] and the ISRM Verification Guidance [12].

8.1.1 Verification Results

Verification was performed via manual inspection and assisted by a script developed in 8.3.10. The verification outcome is completely free of errors.

Verification reports are in these files "Designed_Services_-_SNOWTAMService.xls" and "Designed_Services_-_SNOWTAMService_Common.xls" available in [15].

8.2 Validation

Validation for this service was performed as part of the SESAR validation exercise EXE-06.03.01-VP-669 in Q1 2016. The outcome is recorded in the Validation report VALR [16].

9 References

Name	Version	Document ID / Location
[1] OFA 05.01.01 Consolidated OSED edition 3 document (Part1)	03.00.00	06.05.04 D16
[2] OFA 05.01.01 Consolidated OSED edition 3 document (Part2)	03.00.00	06.05.04 D16
[3] Service Identification Report - SVA003	00.01.00	08.03.06
[4] B.4.3 Service Allocation - SVA003	00.00.03	B.04.03
[5] ISRM Service Portfolio	00.08.01	08.03.10 D65
[6] Project deliverables template	03.00.00	SJU templates & guidelines package, Project deliverables template
[7] SESAR Operational Service and Environment Definition	03.00.00	SJU templates & guidelines package, OSED template
[8] SESAR Safety and Performance Requirements	03.00.00	SJU templates & guidelines package, SPR template
[9] ISRM Tooling Guidelines	00.07.00	08.03.10 D44
[10] ISRM Modelling Guidelines	00.07.00	08.03.10 D44
[11] ISRM Foundation Rulebook	00.07.00	08.03.10 D44
[12] ISRM Verification Guidelines	00.07.00	08.03.10 D44
[13] European ATM Architecture (EATMA) Guidance Material v4	00.04.02	B.04.01 D66
[14] ICAO Annex 15, Aeronautical Information Services	10th Edition, July 1997	www.icao.int
[15] Verification reports for the service	N/A	08.03.10 D65 Verification reports
[16] SESAR P06.03.01 Delivery of VALR EXE669 ENAV proposition	00.01.00	06.03.01 D140

-END OF DOCUMENT-