



European ATM Service Description for the IntegratedDigitalBriefing 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 IntegratedDigitalBriefing Service
Deliverable ID	D65
Edition	00.01.01
Template Version	02.00.02

Task contributors

DFS, EUROCONTROL, NORACON, NATMIG, FINMECCANICA, FREQUENTIS, THALES, ENAIRE, DSNA, INDRA, SEAC and ENAV

Abstract

This document describes an Integrated Digital Briefing service enabled by the availability of digital aeronautical services and meteorological services to distribute a Digitally Enhanced Pre-Flight Information Bulletin (ePIB).

Authoring & Approval

Prepared By - Authors of the document.		
Name & Company	Position & Title	Date
[REDACTED] Frequentis	[REDACTED]	01/06/2016
Reviewed By - Reviewers internal to the project.		
Name & Company	Position & Title	Date
[REDACTED] Frequentis	[REDACTED]	28/04/2016
[REDACTED] NORACON	[REDACTED]	31/05/2016
Reviewed By - Other SESAR projects, Airspace Users, staff association, military, Industrial Support, other organisations.		
Name & Company	Position & Title	Date
[REDACTED] Frequentis	[REDACTED]	28/04/2016
Approved for submission to the SJU By - Representatives of the company involved in the project.		
Name & Company	Position & Title	Date
[REDACTED] NORACON	[REDACTED]	02/06/2016
[REDACTED] NORACON	[REDACTED]	02/06/2016
Rejected By - Representatives of the company involved in the project.		
Name & Company	Position & Title	Date
<i>Name / Company</i>	<i><Position / Title></i>	<i>DD/MM/YYYY</i>
Rational for rejection		
<i>None.</i>		

Document History

Edition	Date	Status	Author	Justification
00.00.01	28/04/2016	Draft	[REDACTED]	First version
00.00.02	04/05/2016	Draft	[REDACTED]	Update after SMT3 Feedback
00.00.03	18/05/2016	Draft	[REDACTED]	Update after T6 Review 1
00.00.04	30/05/2016	Draft	[REDACTED]	Update after T6 Review 2
00.00.05	01/06/2016	Draft	[REDACTED]	Minor consolidation updates by Tom Erik White
00.01.00	02/06/2016	Final	[REDACTED]	Final version for ISRM 2.0 delivery
00.01.01.	20/07/2016	Final update	[REDACTED]	Updated according to 08.03.10-D65_SJU_Assessment_report_reponse

Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

Table of Contents

EXECUTIVE SUMMARY	6
1 INTRODUCTION.....	7
1.1 PURPOSE OF THE DOCUMENT.....	7
1.2 INTENDED READERSHIP.....	7
1.3 INPUTS FROM OTHER PROJECTS.....	7
1.4 GLOSSARY OF TERMS.....	7
1.5 ACRONYMS AND TERMINOLOGY	7
1.5.1 Acronyms.....	7
1.5.2 Terminology.....	8
2 SERVICE IDENTIFICATION.....	10
3 OPERATIONAL AND BUSINESS CONTEXT	11
3.1 INFORMATION EXCHANGE REQUIREMENTS.....	13
3.2 OTHER REQUIREMENTS.....	15
3.2.1 Non-Functional Requirements	15
3.2.2 Relevant Industrial Standards.....	15
3.2.3 Nodes.....	15
4 SERVICE OVERVIEW	16
4.1 SERVICE TAXONOMY	16
4.2 SERVICE LEVELS (NFRs)	16
4.3 SERVICE FUNCTIONS AND CAPABILITIES.....	16
4.4 SERVICE INTERFACES.....	17
5 SERVICE INTERFACE SPECIFICATIONS	18
5.1 SERVICE INTERFACE INTEGRATEDDIGITALBRIEFINGREQREPINTERFACE	18
5.1.1 Service Interface Definition IntegratedDigitalBriefingProvider	18
5.2 SERVICE INTERFACE INTEGRATEDDIGITALBRIEFINGPUBSUBINTERFACE.....	24
5.2.1 Service Interface Definition IntegratedDigitalBriefingPublisher.....	25
5.2.2 Service Interface Definition IntegratedDigitalBriefingSubscriber	27
6 SERVICE DYNAMIC BEHAVIOUR	30
6.1 SERVICE ORCHESTRATION.....	30
6.2 SERVICE INTERFACE INTEGRATEDDIGITALBRIEFINGREQREPINTERFACE	30
6.3 SERVICE INTERFACE INTEGRATEDDIGITALBRIEFINGPUBSUBINTERFACE.....	31
7 SERVICE PROVISIONING (OPTIONAL)	32
8 VALIDATION AND VERIFICATION	33
8.1 VERIFICATION.....	33
8.1.1 Verification Results.....	33
8.2 VALIDATION	33
9 REFERENCES.....	34

List of tables

Table 1: Requirements tracing	15
Table 2: Service Interfaces	17
Table 3: Payload tracing to AIRM	24

List of figures

Figure 1: NAV IntegratedDigitalBriefing Requirements Traceability IER diagram	13
Figure 2: NOV-2 IntegratedDigitalBriefing Service to Nodes Mapping diagram	15
Figure 3: NSOV-4 IntegratedDigitalBriefing Service to Operational Activities Mapping diagram	16
Figure 4: NSOV-2 IntegratedDigitalBriefing Interface Definition diagram	17
Figure 5: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Request/Repy diagram ...	19
Figure 6: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Briefing diagram	20
Figure 7: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram	25
Figure 8: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram	26
Figure 9: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram	28
Figure 10: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Briefing diagram	29
Figure 11: NSOV-3 IntegratedDigitalBriefing Service Orchestration	30
Figure 12: NSOV-5c IntegratedDigitalBriefing Event Trace Description Request/Reply	30
Figure 13: NSOV-5c IntegratedDigitalBriefing Event Trace Description Publish/Subscribe	31

Executive summary

This document describes an Integrated Digital Briefing service enabled by the availability of digital aeronautical services and meteorological services to distribute a Digitally Enhanced Pre-Flight Information Bulletin (ePIB).

The IntegratedDigitalBriefing service allows consumers to request briefing information based on various filtering criteria as well as to subscribe for being informed about updated in the briefing information (in-flight updates).

Briefing information includes meteorological data (e.g., METAR, TAF, SIGMET) as well as aeronautical information (e.g., NOTAM).

The IntegratedDigitalBriefing service is an integrating service, providing added value in combining information that is already available by other services, such as meteorological services (e.g., METAR, TAF services), aeronautical information services (e.g., AeronauticalInformationFeature service), mapping services (e.g., AerodromeMapInformation, AeronauticalInformationMap services).

1 Introduction

1.1 Purpose of the document

The purpose of this service description is to provide a holistic overview of the Integrated Digital Briefing service and its building blocks. It serves as a complement to a model based description and supports the configuration management process by providing well-defined baselines.

The service description document is also the foundation material for the standardisation process.

1.2 Intended readership

This Service Description Document is intended to be read by Enterprise Architects, Service Architects, Information Architects, System Engineers and Developers in pursuing architecting, design and development activities.

1.3 Inputs from other projects

N/A

1.4 Glossary of terms

This section identifies terms not covered in one or more referenced documents and a proposed definition.

1.5 Acronyms and Terminology

To be completed if needed

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
ePIB	Enhanced Pre-flight Information Bulletin
FAA	Federal Aviation Administration
IER	Information Exchange Requirement
ISRM	Information Service Reference Model
MG	ISRM Modelling Guidelines
NAF	NATO Architecture Framework
NSOV	NATO Service Oriented View
NOV	NATO Operational View

founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
www.sesarju.eu

Term	Definition
NSV	NATO System View
OSD	Operational Service and Environment Definition
QoS	Quality of Service
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.
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SoaML	Service Oriented Architecture Modelling Language
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 [8]
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 [8]
Node	A logical entity that performs Activities. Note: nodes are specified independently of any physical realisation.	EATMA Guidance Material [8]
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 [8]
Service	A type of activity describing the functionality of a Service.	EATMA Guidance


founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
www.sesarju.eu

Term	Definition	Source
function		Material [8]
Service interface	The mechanism by which a service communicates	EATMA Guidance Material [8]

2 Service identification

Name	IntegratedDigitalBriefing
ID	{31AD7B67-71C0-475c-93D5-6BF6012A0CDD}
Version	1.0
Keywords	Briefing, Digital Briefing, ePIB, PIB
Architect(s)	 FREQUENTIS FREQUENTIS

Lifecycle status	Date	References
Identified	05/11/2015	[15]
Allocated	05/11/2015	[15]
Designed	31/05/2016	Delivery of this SDD and ISRM model
Validated	<i>Date when validated. Filled by WP3</i>	<i>Name of protocol documenting the decision</i>
IOC	<i>Date for Initial Operational Capability</i>	<i>Reference to technical enabler hosting the service in the ATM master plan</i>
FOC	<i>Date for Full Operational Capability</i>	<i>Reference to technical enabler hosting the service in the ATM master plan</i>

3 Operational and Business context

Currently, the pre-flight briefing is usually provided in the form of a 'bulletin' given to the pilot, which contains the list of valid NOTAMs. Automatic filtering/sorting capabilities are limited to some NOTAM "qualifiers", which are allocated by the issuing NOTAM office. The free text part of the NOTAM, where the actual information is provided, is not suitable for querying and filtering. The graphical representation of the NOTAM information is quite limited. NOTAM are typically displayed as a circle representing an "area of possible influence".

For the MET section, the graphical representation of the MET information (e.g. METAR, TAF, SIGMET) is missing or quite limited. MET information is typically reported in the 'bulletin' as coded text or as significant weather charts, with no possibility to filter information (e.g. in one specific area) or query additional parameters to overlap in the same map.

Based on digital NOTAM and digital MET data, the briefing could be radically improved:

- with digital NOTAM data, through more precise automatic filtering/sorting, by replacing/supplementing the NOTAM text with graphical information;
- with digital MET data, through more precise and updated meteorological information, by integrating the MET information in graphical charts and including additional information in synthetic views.

Aircraft are expected to be increasingly equipped with Electronic Flight Bag (EFB) devices, which support the pilot in flight and on the ground through the provision of flight documentation and situational awareness applications. The pre-flight briefing could take place directly on the EFB, using data provided by digital briefing applications on the ground and updated over a data link during the flight.

Provision, processing and retrieval of the digital NOTAM will be enabled by access to defined services made available through SWIM (System Wide Information Management) network and concepts.

The briefing requirements for the meteorological sections are organised in two parts:

- Digital Integrated Briefing requirements for MET data:
 - requirements related to meteorological messages, i.e. messages that can be displayed in the formatted text (as currently done) in the Digital Integrated Briefing, as backup or in conjunction with the graphical representation (where applicable);
 - requirements for the visualization of meteorological charts that can be available in the interactive Digital Integrated Briefing;
 - requirements related to meteorological information that can be displayed as graphical representations to visualise in synthetic views the formatted text messages.
- On-Board Briefing requirements for MET section: requirements related to retrieval and updating of meteorological information and air-reports for on-board briefing device.

In order to plan and execute a flight in a safe and efficient manner, the flight personnel involved in the process, including flight crews, need to be aware of the status and eventual constraints existing in the environment where the flight will be executed. This includes:

- aeronautical information, such as information about the capabilities, status and condition of the infrastructure and services available at the departure, arrival, alternate and emergency airports along the route; information about the terminal and en-route airspace organisation, routes, navigation aids, services and any other constraints;
- weather information, both current and forecast.

The briefing requirements are slightly different in the planning and execution phases. In the **flight planning phase**, the need is for a wider area to be covered, with focus on those elements that can lead to the definition of an optimal route. For commercial aviation and for military flights, the planning phase is generally executed by specialised services (AOC/WOC, external service providers, etc.), using databases and software applications that support the work of the flight planning operator. In

many aspects this is no longer seen as a “briefing” process. Still, the ICAO Standards and Recommended Practices oblige States to provide support through briefing (at the ARO) for this planning phase, so that a standard service is available worldwide. General aviation is still an important user of such briefing services for the flight planning purpose.

In the **flight execution phase**, the route is already planned and, in the case of FMS equipped aircraft, it will be followed automatically to a large extent. However, the flight crew needs to be aware of eventual constraints and changes that might require human intervention during the flight. This includes the evolution of the weather situation along the route and possibly the unavailability of certain procedures/services/navaids, certain airspace activities that might require tactical re-routing, constraints on the airport surface where the navigation is done manually, possibilities for emergency/alternate landing, etc. The geographical scope of the information is narrower, possibly reduced to some tens of nautical miles left/right of the planned trajectory.

The flight crew is supported during the flight execution phase through:

- the pre-flight briefing package, which is done on the ground, including at the gate (in the cockpit), in the hours/minutes that precede the departure;
- the in-flight briefing package, which was limited in the past to the information received already in the pre-flight phase and was basically using the documentation handed over to the crew before the flight. With the increased availability of air-ground data link, information updates are now possible in the cockpit. The initial focus is on the weather changes, which by their nature are much more dynamic than the aeronautical information. Most of the aeronautical information necessary for the flight execution is known before the flight and will remain unchanged during the flight. The limited amount of aeronautical information messages that contain relevant updates might also be transmitted through data link, as an additional benefit to the capability for transmitting weather updates.

The Digital Integrated Briefing (DIB) concept proposes several key improvements in the briefing process, which are applicable in all briefing phases, both on the ground and in the air:

- integrate the presentation of the dynamic updates with the baseline data, in order to facilitate the understanding of the impact that the dynamic updates have on the execution of the flight. This is particularly important for the airport situation, where the current way of presenting the information separates the NOTAM (contained in the PIB) and the airport layout (contained in a map of the flight manual).
- a radical change in the format/tools used for presenting the information, in particular concerning NOTAM messages. Based on the expected availability of digital NOTAM data, the information contained in the NOTAM messages can now be rendered graphically and can be integrated in airport/en-route maps, prioritised/filtered for each particular flight;
- grouping of the aeronautical and weather information per phase of flight, including merged presentation of certain information elements (such as wind direction, temperature, visibility, etc.), in particular for the airport section of the briefing.

Such graphical presentations are made possible through the implementation of the digital NOTAM concept. In order to encode the NOTAM information digitally, all the data currently exchanged by NOTAM needs to be modelled and specified in a data exchange format. This was achieved with the Aeronautical Information Exchange Model (AIXM) version 5.1 and the development of related Digital NOTAM data encoding/decoding specifications.

Digital NOTAM will be implemented incrementally, with the most common types of NOTAM being supported first, in order to match the gradual implementation by the end-user of their capabilities for digital NOTAM processing. The digital NOTAM concept is equally applicable to civil and military aeronautical information.

On the weather data side, MET information in digital format (IWXXM) is used for visualization. Weather charts are grouped together with the aeronautical information that is relevant for each phase of flight: departure, climb, cruise, descent, approach, taxiing, etc.

The data necessary for the provision of the DIB service is retrieved in compliance with SWIM principles and specifications. Information provision is separated from consumption, using open standards and developing functionalities in which interoperable services can be used in a flexible way.

3.1 Information Exchange Requirements

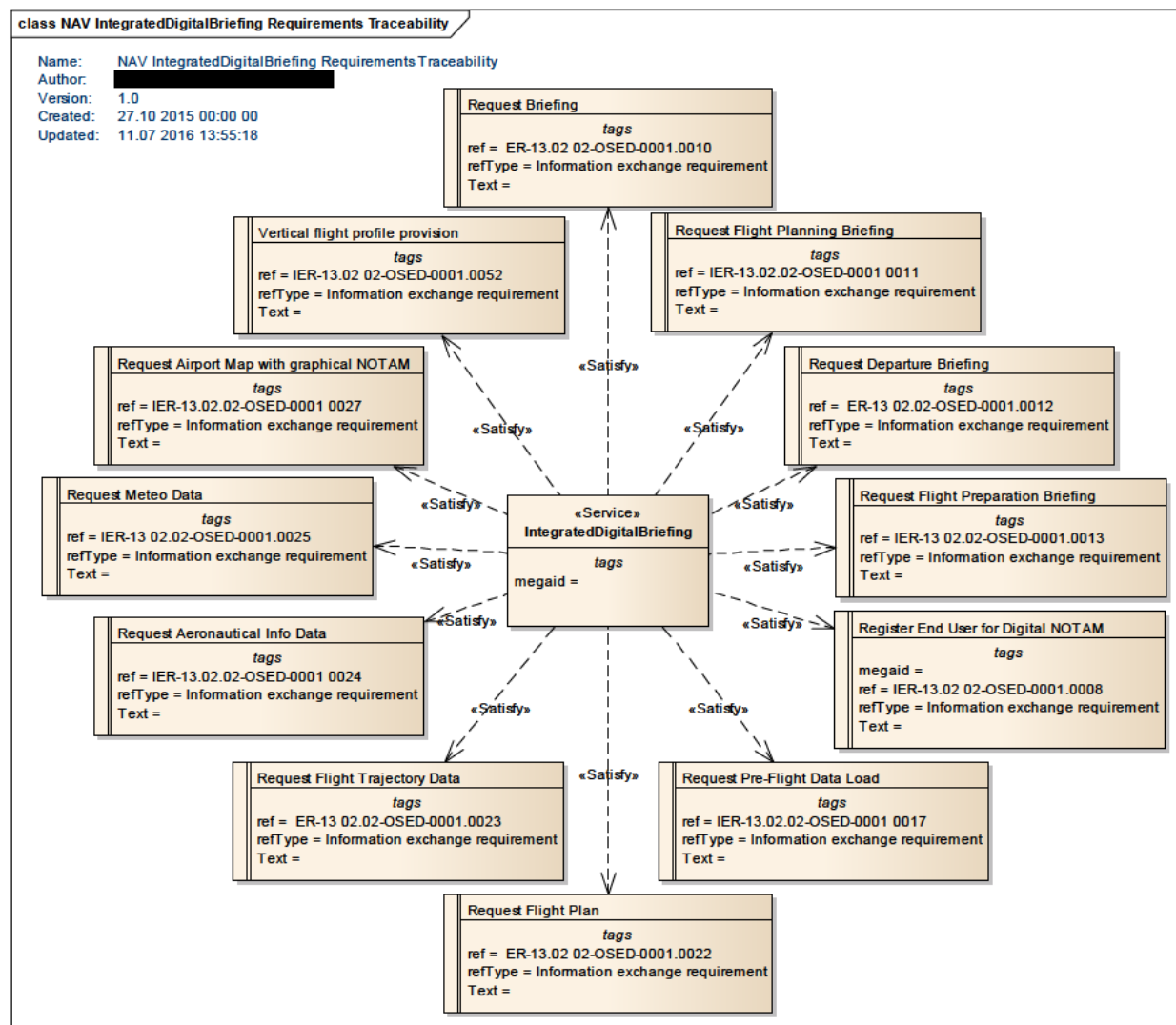


Figure 1: NAV IntegratedDigitalBriefing Requirements Traceability IER diagram

Element Name	Author	Notes
Register End User for Digital NOTAM	[REDACTED]	Register End User for Digital NOTAM.
Element Tagged Value Name		
megaid		
ref		IER-13.02.02-OSED-0001.0008
refType		Information exchange requirement
Text		
Element Name	Author	Notes
Request Aeronautical Info Data	[REDACTED]	DEL_13.02.02_D19_OSED_00 00 06
Element Tagged Value Name		
ref		IER-13.02.02-OSED-0001.0024

founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
 www.sesarju.eu

	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Airport Map with graphical NOTAM		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0027
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Briefing		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0010
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Departure Briefing		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0012
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Flight Plan		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0022
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Flight Planning Briefing		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0011
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Flight Preparation Briefing		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0013
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Flight Trajectory Data		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0023
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Meteo Data		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0025
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Request Pre-Flight Data Load		DEL_13.02.02_D19_OSED_00 00 06
	Element Tagged Value Name	Value
	ref	IER-13.02.02-OSED-0001.0017

founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
www.sesarju.eu

	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Vertical flight profile provision		DEL_13.02.02_D19_OSED_00 00 06
Element Tagged Value Name	Value	
ref	IER-13.02.02-OSED-0001.0052	
refType	Information exchange requirement	
	Text	

Table 1: Requirements tracing

3.2 Other Requirements

3.2.1 Non-Functional Requirements

N/A

3.2.2 Relevant Industrial Standards

The service aggregates information that is available from other services (see 6.1). In accordance with these services, the IntegratedDigitalBriefing service is compliant to

- ISO 19142:2010 Geographic information – Web feature service [11]
- IWXXM 1.1 [12]
- EUROCAE standards ED-99C and ED-119B (for Aerodrome Mapping) [13] and [14]

3.2.3 Nodes

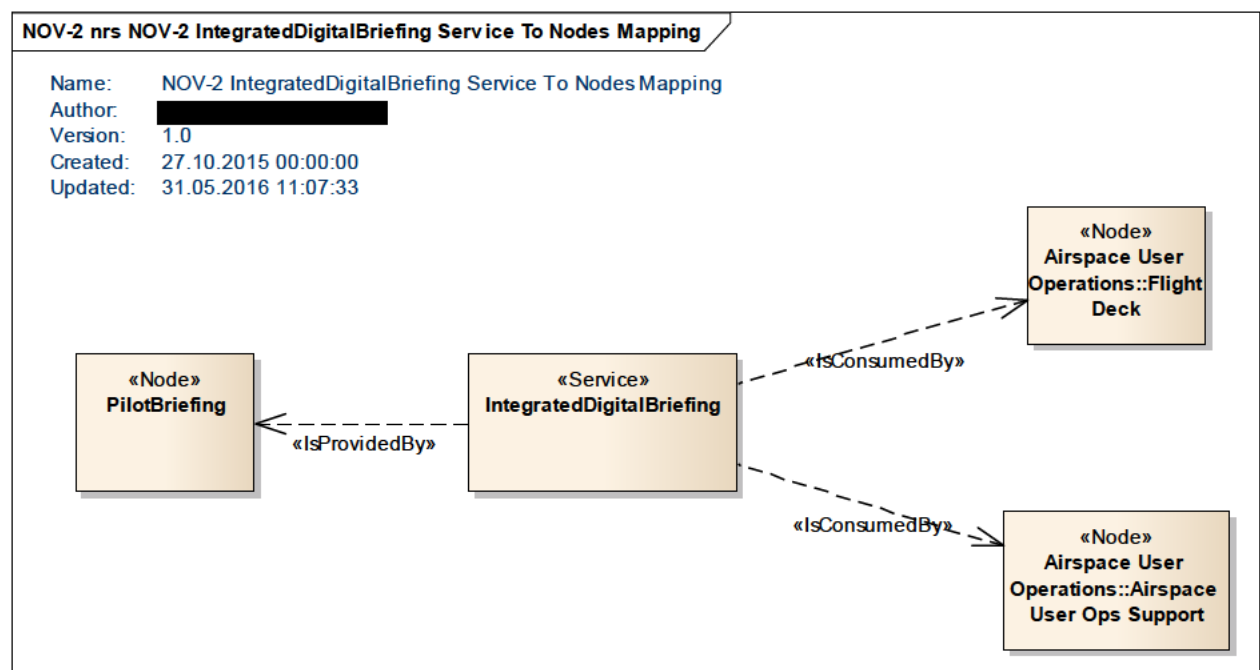


Figure 2: NOV-2 IntegratedDigitalBriefing Service to Nodes Mapping diagram

4 Service overview

4.1 Service Taxonomy

The service taxonomy is described in the ISRM Service Portfolio document [9].

4.2 Service Levels (NfRs)

N/A.

4.3 Service Functions and Capabilities

The mapping from Service to Operational Activities is shown in the NSOV-4 Service to Operational Activity diagram below (Figure 3).

The mapping from Service to Capabilities is shown in the NSOV-2 Interface Definition diagram in section 4.4.

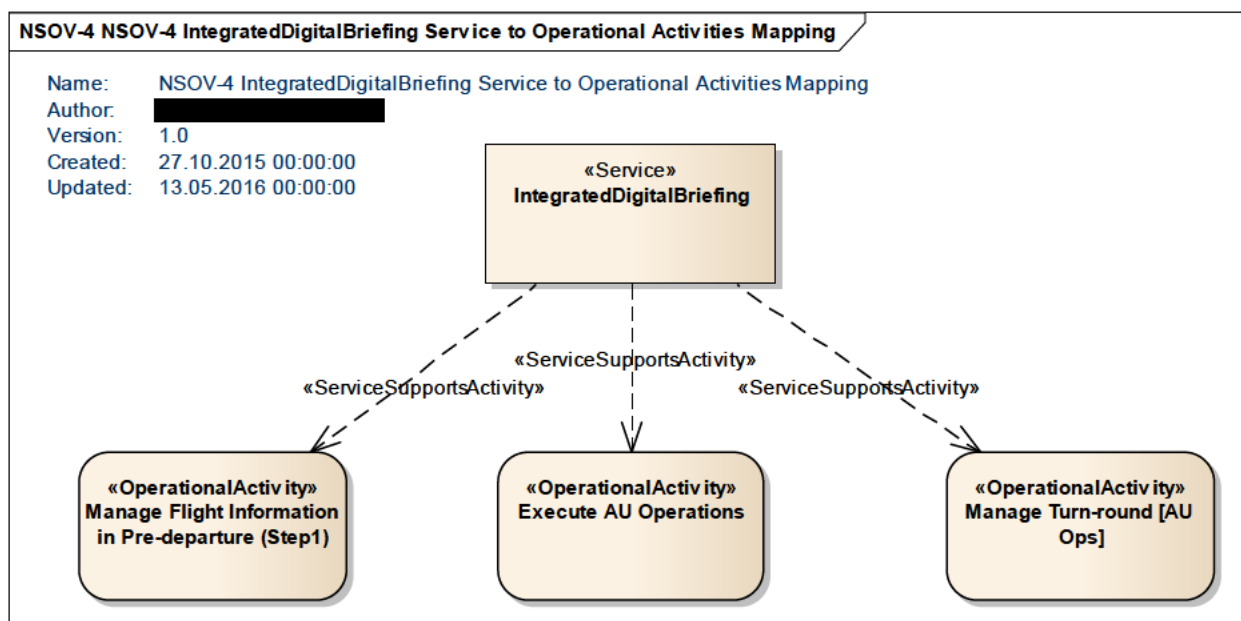


Figure 3: NSOV-4 IntegratedDigitalBriefing Service to Operational Activities Mapping diagram

4.4 Service Interfaces

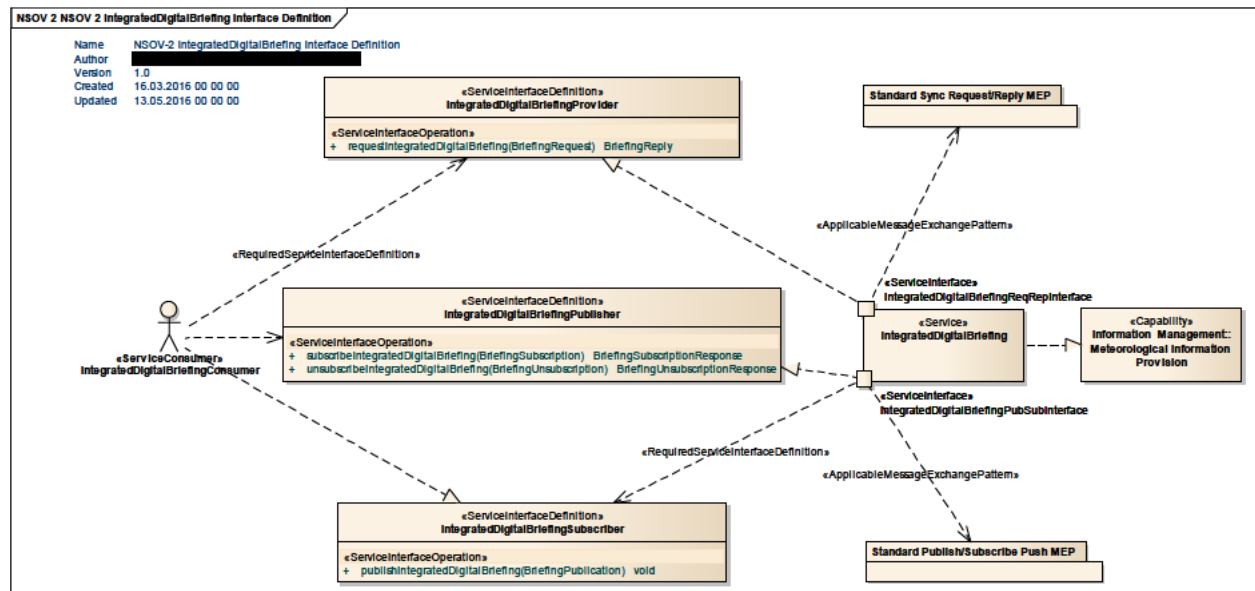


Figure 4: NSOV-2 IntegratedDigitalBriefing Interface Definition diagram

ServiceInterface	ServiceInterfaceDefinition	ServiceInterfaceOperation	Role
IntegratedDigitalBriefingReqRepInterface	IntegratedDigitalBriefing Provider	requestIntegratedDigitalBriefing	provided
IntegratedDigitalBriefingPubSubInterface	IntegratedDigitalBriefing Publisher	subscribeIntegrated DigitalBriefing	provided
IntegratedDigitalBriefingPubSubInterface	IntegratedDigitalBriefing Publisher	unsubscribeIntegrated DigitalBriefing	provided
IntegratedDigitalBriefingPubSubInterface	IntegratedDigitalBriefing Subscriber	publishIntegratedDigital Briefing	required

Table 2: Service Interfaces

5 Service interface specifications

5.1 Service Interface IntegratedDigitalBriefingReqRepInterface

Request/Reply interface of the IntegratedDigitalBriefing service for retrieving briefing information.

5.1.1 Service Interface Definition IntegratedDigitalBriefingProvider

The "IntegratedDigitalBriefingProvider" interface definition provides means to requesting and receiving digital briefing information by issuing dedicated filtering criteria (e.g., flight plan, flight profile, ...) as detailed in the operation description below.

5.1.1.1 Operation requestIntegratedDigitalBriefing

The "RequestIntegratedDigitalBriefing" operation allows retrieving digital briefing information by providing dedicated filtering criteria.

5.1.1.1.1 Operation Functionality

The "RequestIntegratedDigitalBriefing" operation gets a BriefingRequest structure as input parameter and delivers a BriefingReply structure as the result. The BriefingRequest structure contains the filtering criteria for the requested digital briefing information, such as airspace selection, aerodrome selection, flight plan information or reference, time interval, etc. (see section 5.1.1.1.2 for details). All allowed filtering criteria are optional. The requester may choose any subset of them when composing the briefing request. The operation collects all relevant briefing information according to the given filtering criteria and delivers them in the resulting BriefingReply structure (see section 5.1.1.1.2 for details).

5.1.1.1.2 Operation Parameters

The “requestIntegratedDigitalBriefing” operation has one input parameter of type BriefingRequest and delivers the BriefingReply structure as the return value.

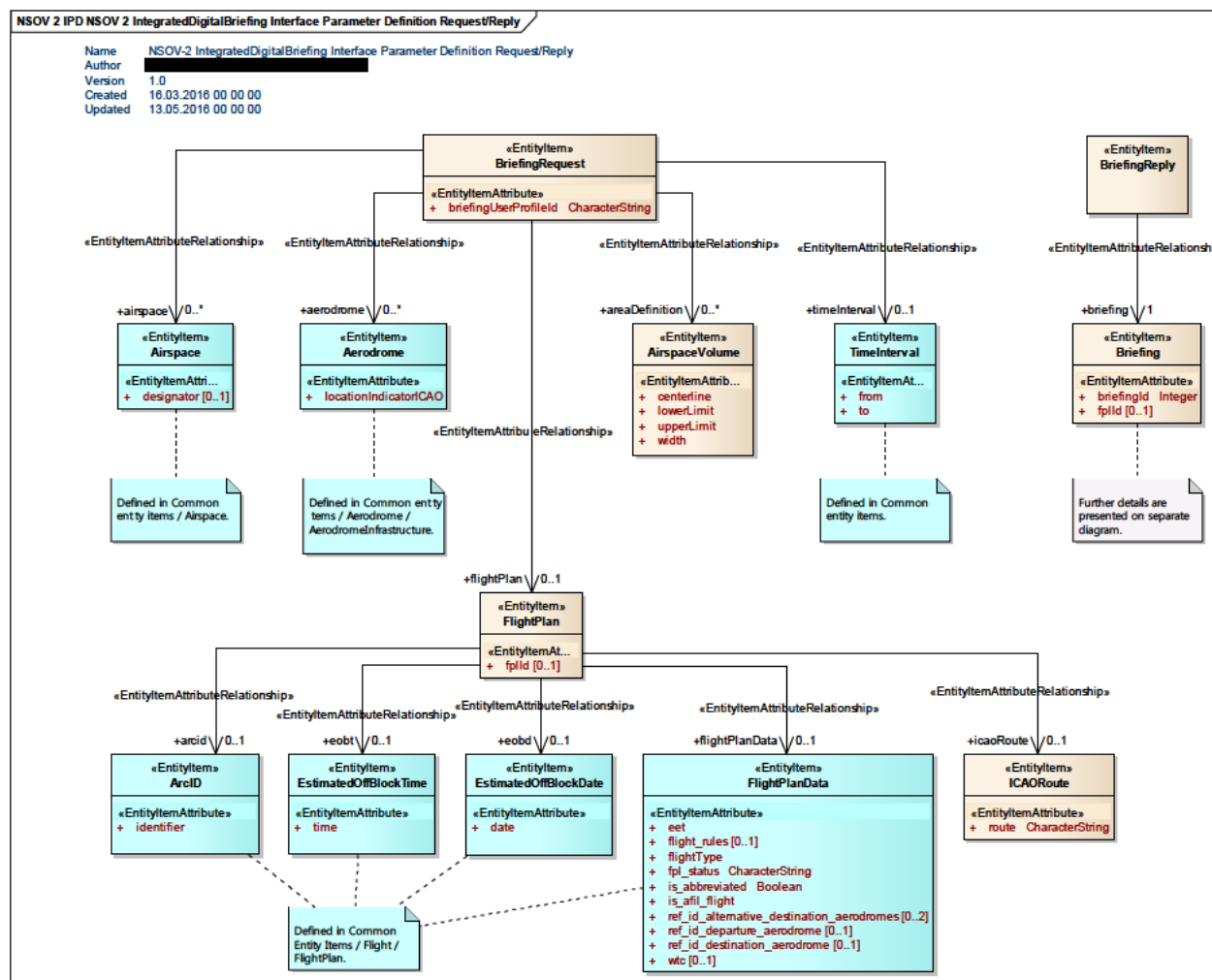


Figure 5: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Request/Reply diagram



Element Name		Author	Notes
AerodromeBriefing			Briefing information about an aerodrome. This structure is repeated for each aerodrome referred to by the briefing, as for example: - aerodrome of departure of the concerned flight plan - aerodrome of destination of the concerned flight plan - alternate aerodromes specified in the concerned flight plan - any other aerodromes requested in the briefing request.
	Attribute Name	Type	Notes
	aerodromeName		Name of the aerodrome
	Tagged Value Name		Value
	CLDMSemanticTrace		urn:x-ses:sesaria:airm:v410:ConsolidatedLogicalDataModel:Subje

		ctFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@name
Attribute Name	Type	Notes
locationIndicatorICAO		Unique ICAO code of the aerodrome
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@designator	
Element Name	Author	Notes
AerodromeNotam		This structure collects different NOTAM information about an aerodrome.
Element Name	Author	Notes
AirspaceVolume		Defines a "corridor" area by giving a center line, a width value and a lower and upper height limit.
Attribute Name	Type	Notes
centerline		The center line of the "corridor"
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:AirspaceVolume@centreline	
Attribute Name	Type	Notes
lowerLimit		Lower altitude limit of the corridor
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:AirspaceVolume@lowerLimit	
Attribute Name	Type	Notes
upperLimit		Upper altitude limit of the corridor
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:AirspaceVolume@upperLimit	
Attribute Name	Type	Notes
width		Width of the "corridor".
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:AirspaceVolume@width	
Element Name	Author	Notes
Briefing		The Briefing structure represents the briefing information as contained in the payload of messages sent out by the IntegratedDigitalBriefing service. The actual briefing information is identified by the briefingId attribute and optionally by the fpId attribute (if a Flight Plan was available in the briefing request or could be associated by the briefing service.
Attribute Name	Type	Notes
briefingId	Integer	Identification of the briefing information. This ID is allocated by the IntegratedDigitalBriefingService provider

			when the briefing information is first created (i.e., either when creating the reply to a briefing request, or when creating the first briefing notification for a flight).
	Tagged Value Name		Value
	CLDMSemanticTrace		CLDM out of scope
	Attribute Name	Type	Notes
	fpId		The flight plan identifier is provided with the briefing information, if a flight plan is involved in the request. Note that this attribute is optional, as the briefing request may be issued without any flight plan.
	Tagged Value Name		Value
	CLDMSemanticTrace		urn:x-sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier
Element Name		Author	Notes
BriefingPublication			The BriefingPublication structure represents the data being sent by an IntegratedDigitalBriefing service provider to subscribed consumers if the briefing information has changed. The BriefingPublication contains a Briefing structure, that includes the actual briefing information. This might be the full briefing information or a subset of changed briefing information.
Element Name		Author	Notes
BriefingReply			The BriefingReply structure represents the result of the requestIntegratedDigitalBriefing operation and contains the requested digital briefing information being returned to the requester. The BriefingReply contains a Briefing structure, that includes the requested information.
Element Name		Author	Notes
BriefingRequest			The BriefingRequest structure represents the payload of the requestIntegratedDigitalBriefing operation and contains the filtering criteria for the requested digital briefing information. All allowed filtering criteria are optional. The requester may choose any subset of them when composing the briefing request.
	Attribute Name	Type	Notes
	briefingUserProfileId	CharacterString	Optional user profile identifier. Allows the briefing user to provide its profile to an IntegratedDigitalBriefingService (if the service instance provides user profiling capabilities).
	Tagged Value Name		Value
	CLDMSemanticTrace		CLDM out of scope
Element Name		Author	Notes

BriefingSubscription			The BriefingSubscription structure represents the data to be passed to an IntegratedDigitalBriefing service provider in order to subscribe a consumers for being informed about briefing information. The BriefingSubscription either contains a briefingId (this might be known from the result of a previous briefing request), or a flight plan identifier.
	Attribute Name	Type	Notes
	briefingId	Integer	Identification of a briefing.
	Tagged Value Name	Value	
	CLDMSemanticTrace	CLDM out of scope	
	Attribute Name	Type	Notes
	fplId		Identification of a flight plan.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
Element Name		Author	Notes
BriefingSubscriptionResponse			Return code of the subscription operation.
Element Name		Author	Notes
BriefingUnsubscription			The BriefingUnsubscription structure represents the data to be passed to an IntegratedDigitalBriefing service provider in order to unsubscribe a consumers from being informed about briefing information. The BriefingUnsubscription either contains a briefingId (this might be known from the result of a previous briefing request or from reception of a briefing publication), or a flight plan identifier.
	Attribute Name	Type	Notes
	briefingId	Integer	Identification of a briefing.
	Tagged Value Name	Value	
	CLDMSemanticTrace	CLDM out of scope	
	Attribute Name	Type	Notes
	fplId		Identification of a flight plan.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
Element Name		Author	Notes
BriefingUnsubscriptionResponse			Return code of the unsubscription operation.
Element Name		Author	Notes
FIRBriefing			This structure provides briefing information about a flight information region (FIR).
	Attribute Name	Type	Notes
	firName		Name of the flight information region.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:Airspace@name	
	Attribute Name	Type	Notes
	locationIndicatorICAO		Unique ICAO code of the flight information region.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn:x-	

founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
www.sesarju.eu

		ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:Airspace@locationIndicatorICAO
Element Name	Author	Notes
FlightPlan		FlightPlan data used as filtering criterion for the briefing request. This may contain just a reference to a flight plan (by providing an fplId (if available), or aircraft identifier, complemented by EOBT and EOBD), or it may contain a flight plan (by providing the relevant flight plan data and route information) or it may contain just a route information.
Attribute Name	Type	Notes
fplId		Unique flight plan identifier (if available).
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
Element Name	Author	Notes
ICAORoute		ICAO Route specification according to ICAO Doc 4444 rules.
Attribute Name	Type	Notes
route	CharacterString	Route in text format according to ICAO Doc 4444 rules.
Tagged Value Name	Value	
CLDMSemanticTrace	CLDM_out of scope	
Element Name	Author	Notes
NavigationPoint		Navigation Point identification.
Attribute Name	Type	Notes
locationIndicatorICAO		Unique ICAO code of the navigation point.
Tagged Value Name	Value	
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspaceInfrastructurePoint:DesignatedPoint@name	
Element Name	Author	Notes
SIGMET		The SIGMET report is based on the IWXXM 1.1 standard model (http://schemas.wmo.int/iwxxm/1.1/) This EntityItem corresponds to the following element in the IWXXM standard: - ./IWXXM/v1.1/sigmet/SIGMET
Element Tagged Value Name	Value	
IMDefinitionTrace	urn:x-ses:sesarju:airm:v410:InformationModel:SubjectFields:AirTrafficOperations:InformationServicesProducts:MetorologicalInformationProduct:SIGMET	

Table 3: Payload tracing to AIRM

5.2 Service Interface IntegratedDigitalBriefingPubSubInterface

Publish/Subscribe interface of the IntegratedDigitalBriefing service, allowing subscribing for receiving briefing updates.

founding members



Avenue de Cortenbergh 100 | B -1000 Bruxelles
www.sesarju.eu

24 of 35

5.2.1 Service Interface Definition IntegratedDigitalBriefingPublisher

The "IntegratedDigitalBriefingPublisher" interface definition provides means to subscribing/unsubscribing for being informed about changes in a digital briefing information (e.g., for in-flight updates).

5.2.1.1 Operation subscribeIntegratedDigitalBriefing

The "subscribeIntegratedDigitalBriefing" operation allows a service consumer to subscribe for receiving digital briefing information updates (e.g., for in-flight updates).

5.2.1.1.1 Operation Functionality

The "subscribeIntegratedDigitalBriefing" operation gets a BriefingSubscription structure as input parameter. The BriefingSubscription structure identifies the briefing information either by a briefingId (this might be known from the result of a previous briefing request), or by a flight plan identifier (see section 5.2.1.1.2 for details). After subscribing (until un-subscribing), the requester will be informed (via the publishIntegratedDigitalBriefing operation, see 5.2.2.1) about any changes in the identified briefing information.

5.2.1.1.2 Operation Parameters

The "subscribeIntegratedDigitalBriefing" operation has one input parameter of type BriefingSubscription and delivers a BriefingSubscriptionResponse as return value.

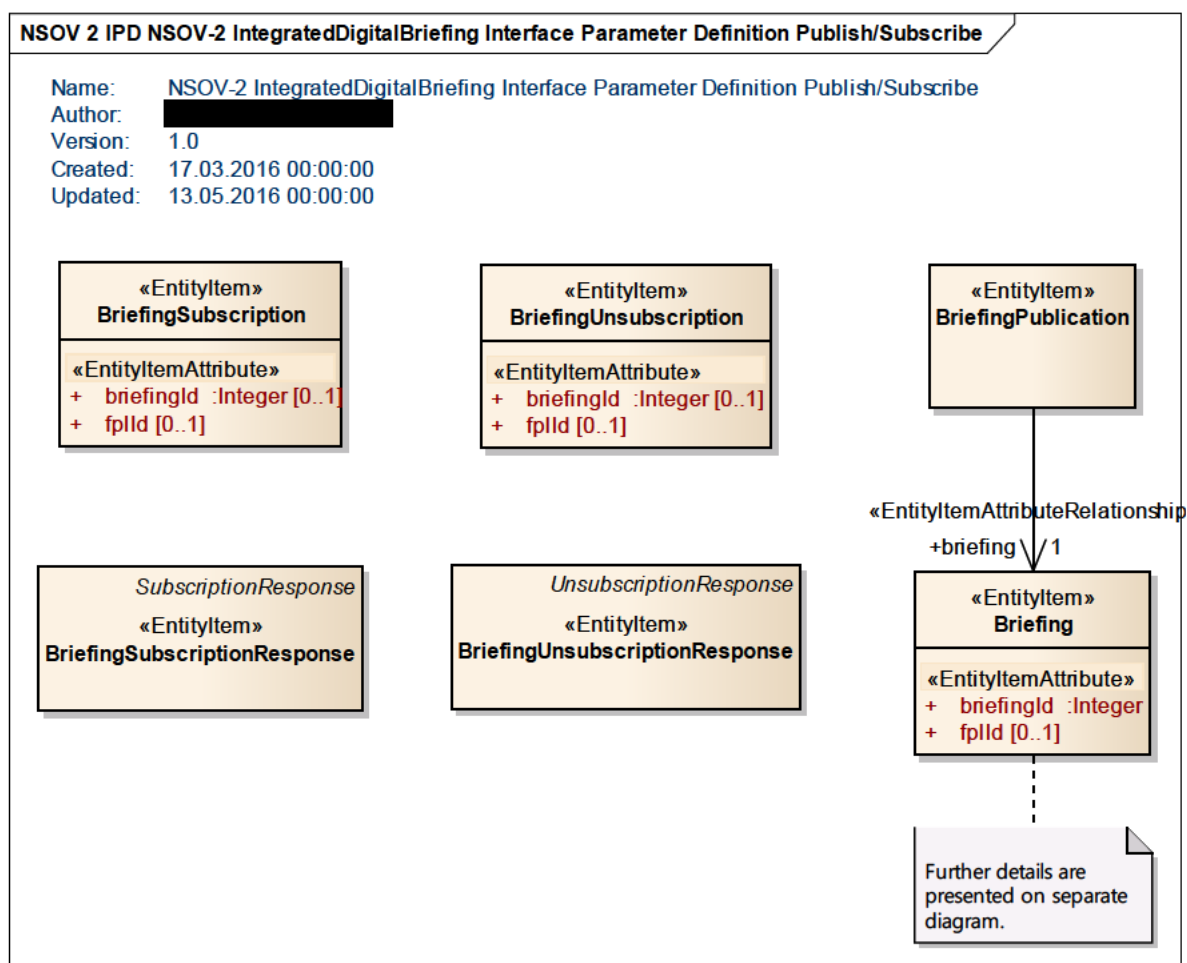


Figure 7: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram

The details (including AIRM traces) of the operation parameter types BriefingSubscription and BriefingSubscriptionResponse are described in Table 3.

5.2.1.2 Operation unsubscribeIntegratedDigitalBriefing

The "unsubscribeIntegratedDigitalBriefing" operation allows a service consumer to unsubscribe from receiving digital briefing information updates (e.g., for in-flight updates).

5.2.1.2.1 Operation Functionality

The "unsubscribeIntegratedDigitalBriefing" operation gets a BriefingUnsubscription structure as input parameter. The BriefingUnsubscription structure identifies the briefing information either by a briefingId (this might be known from the result of a previous briefing request), or by a flight plan identifier (see section 5.2.1.2.2 for details). After un-subscribing, the requester will not be notified (via the publishIntegratedDigitalBriefing operation, see 5.2.2.1) any more about changes in the identified briefing information.

5.2.1.2.2 Operation Parameters

The "unsubscribeIntegratedDigitalBriefing" operation has one input parameter of type BriefingUnsubscription and delivers a BriefingUnsubscriptionResponse as return value.

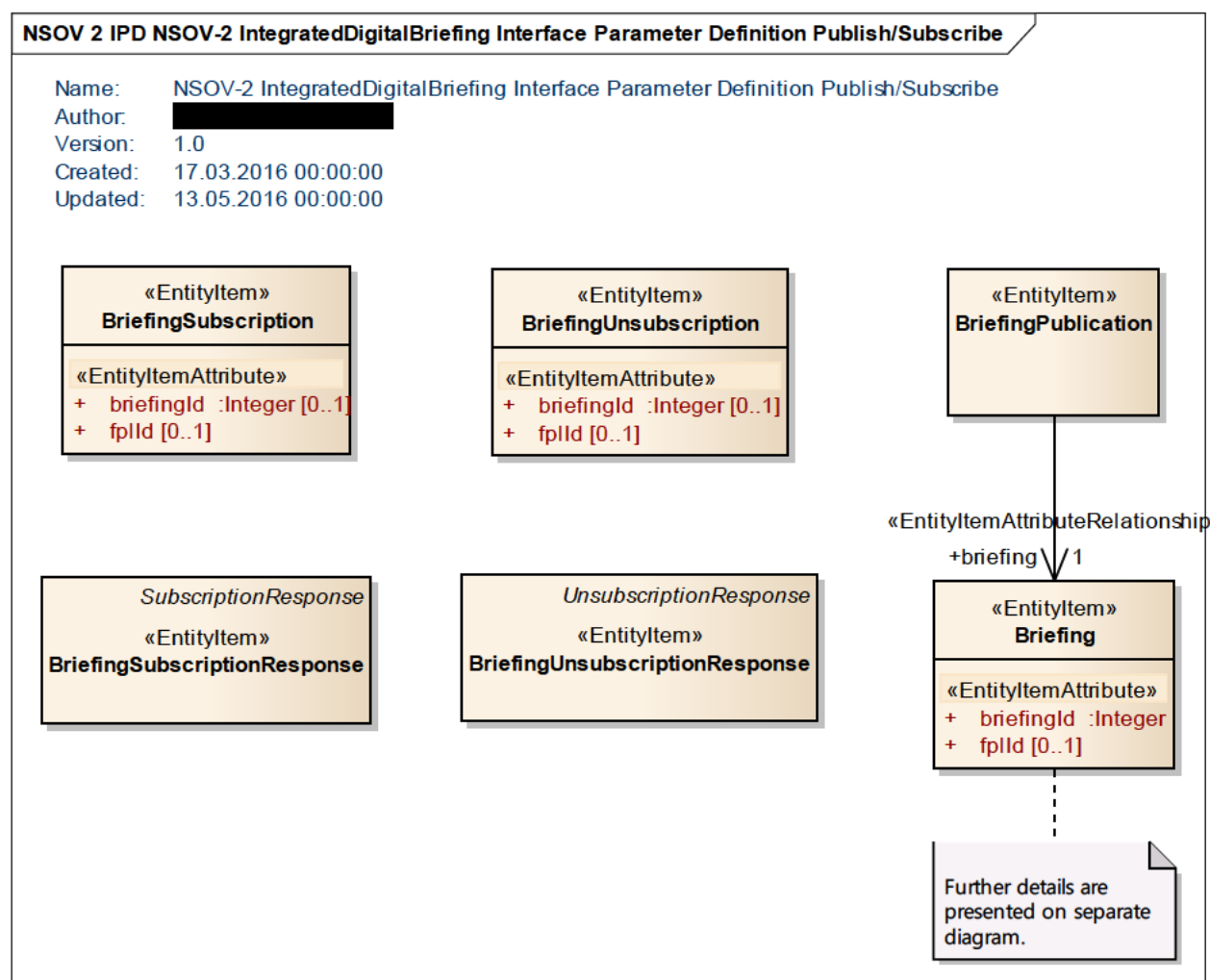


Figure 8: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram

The details (including AIRM traces) of the operation parameter types BriefingUnsubscription and BriefingUnsubscriptionResponse are described in Table 3.

5.2.2 Service Interface Definition

IntegratedDigitalBriefingSubscriber

The "IntegratedDigitalBriefingSubscriber" interface definition provides means for being informed about changes in a digital briefing information (e.g., for in-flight updates).

5.2.2.1 Operation publishIntegratedDigitalBriefing

The "publishIntegratedDigitalBriefing" operation allows the service provider to publish digital briefing information to subscribed service consumers (e.g., in case of changes in a digital briefing information, e.g., for in-flight updates).

5.2.2.1.1 Operation Functionality

If service consumers are subscribed to the IntegratedDigitalBriefing service (see 5.2.1.1 and 5.2.1.2), the service provider informs the service consumers about changes in the corresponding briefing information. The "publishIntegratedDigitalBriefing" operation gets a BriefingPublication structure as input parameter. The BriefingPublication structure carries the briefing information (see section 5.2.2.1.2 for details).

5.2.2.1.2 Operation Parameters

The “publishIntegratedDigitalBriefing” operation has one input parameter of type BriefingPublication and has no return value.

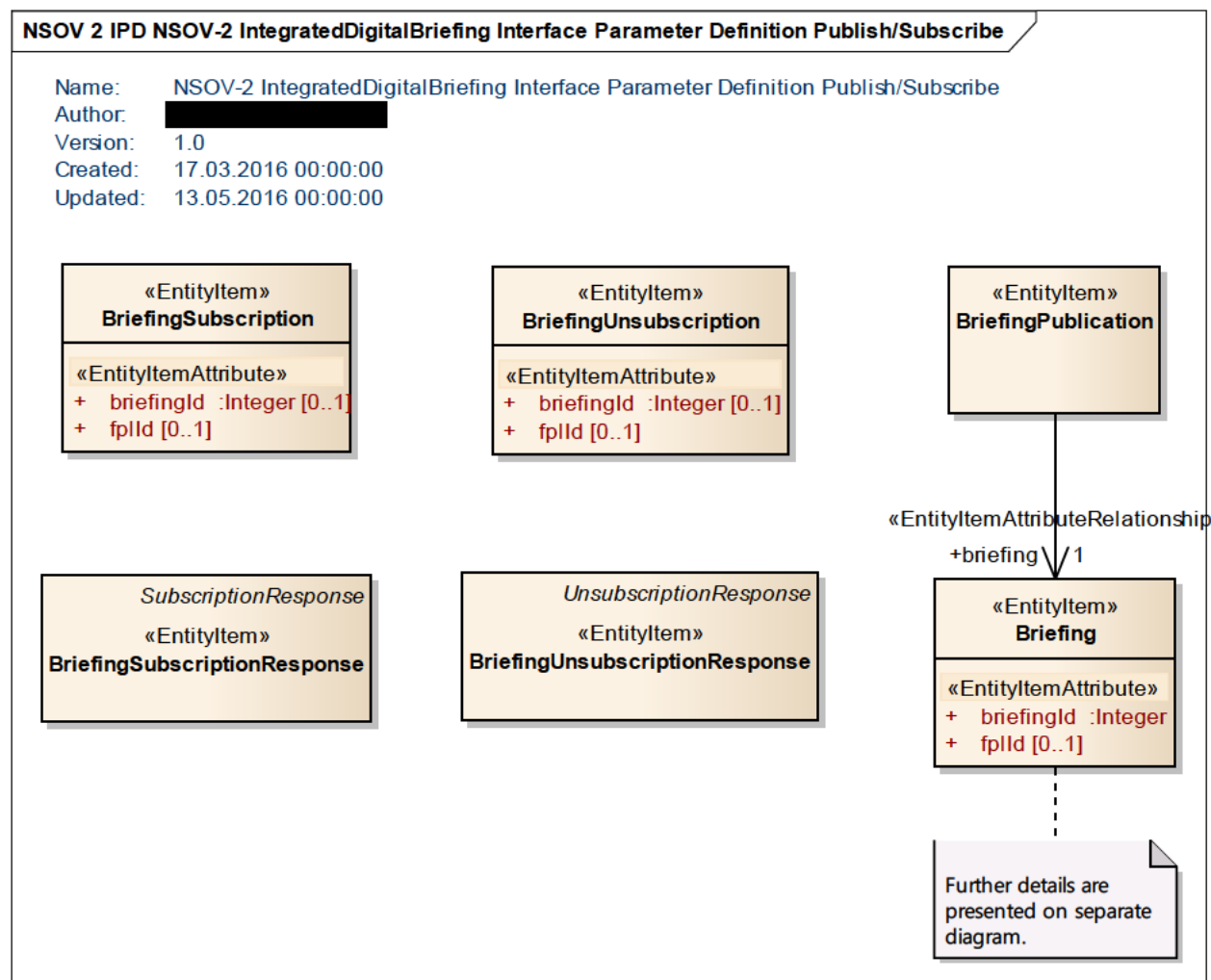


Figure 9: NSOV-2 IntegratedDigitalBriefing Interface Parameter Definition Publish/Subscribe diagram



founding members

6 Service dynamic behaviour

6.1 Service Orchestration

The following figure provides an overview about the services the IntegratedDigitalBriefing service relies to.

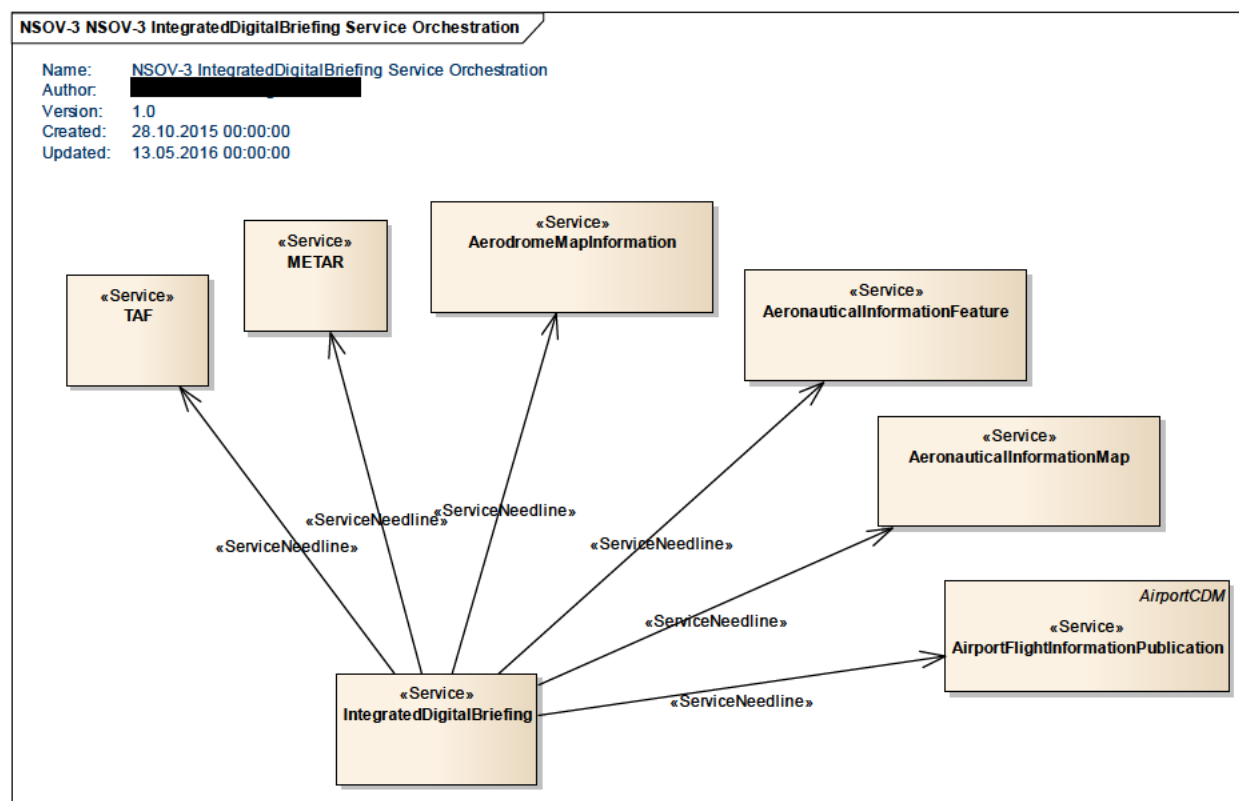


Figure 11: NSOV-3 IntegratedDigitalBriefing Service Orchestration

6.2 Service Interface IntegratedDigitalBriefingReqRepInterface

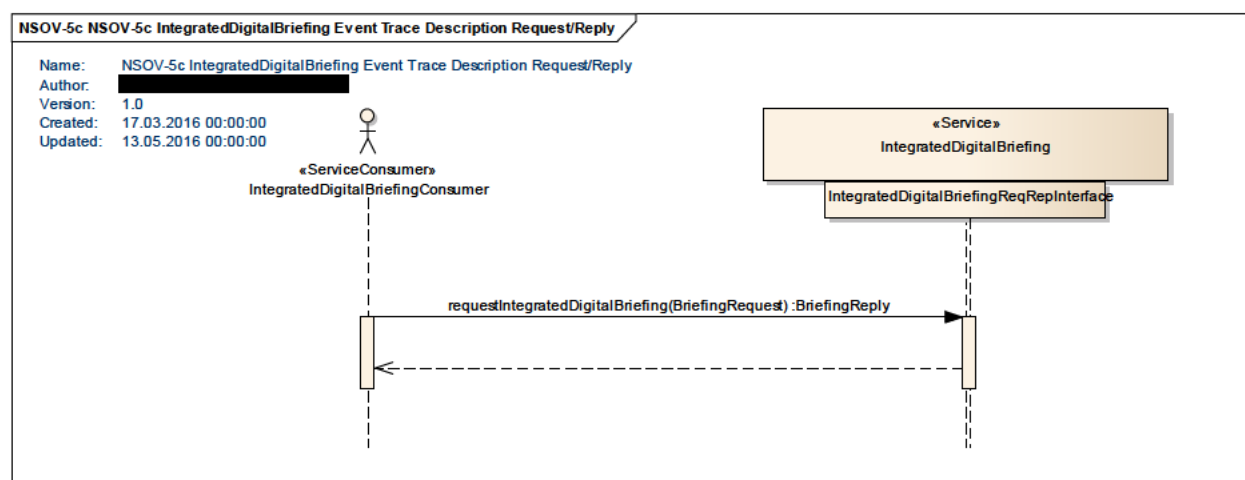


Figure 12: NSOV-5c IntegratedDigitalBriefing Event Trace Description Request/Reply

6.3 Service Interface IntegratedDigitalBriefingPubSubInterface

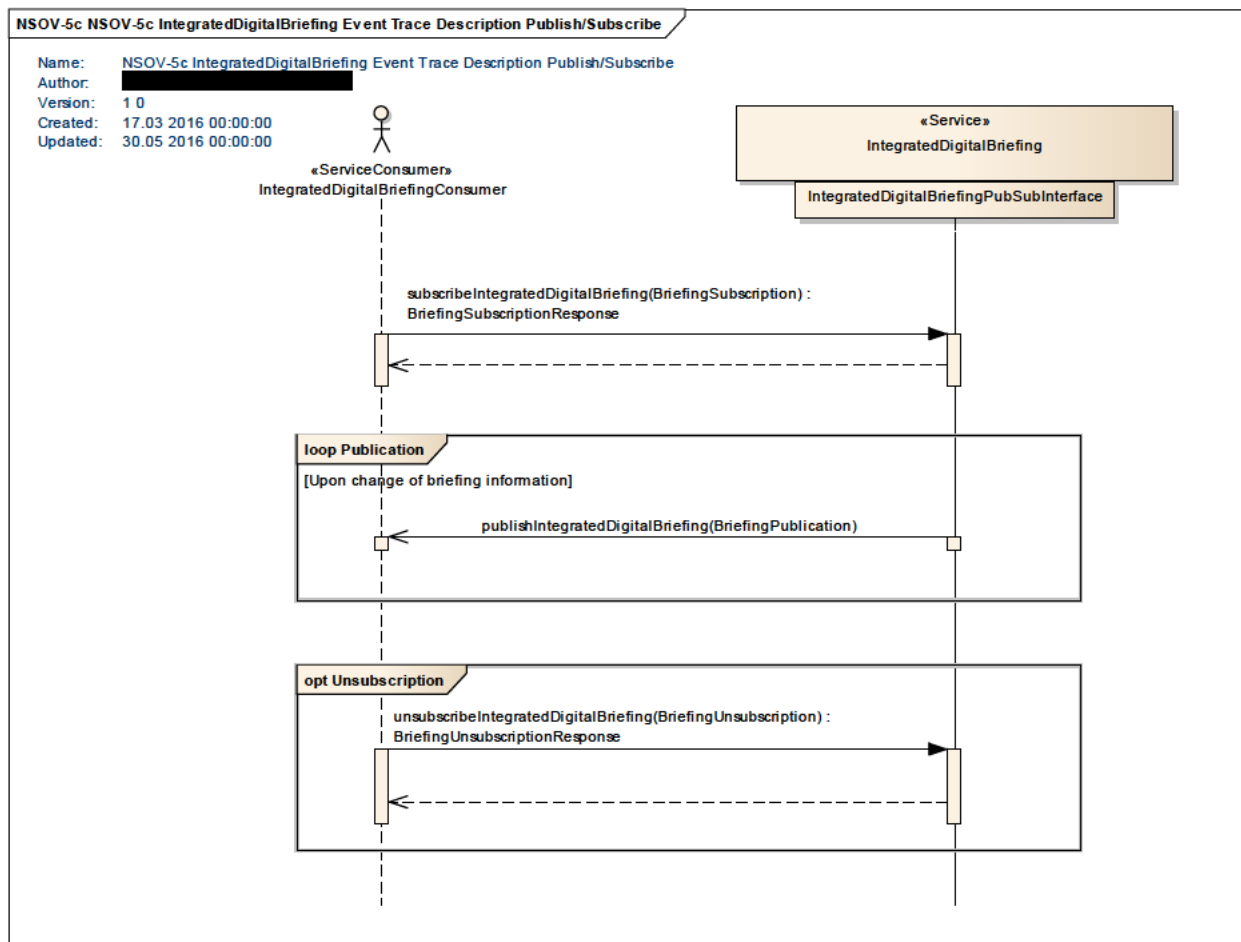


Figure 13: NSOV-5c IntegratedDigitalBriefing Event Trace Description Publish/Subscribe

7 Service provisioning (optional)

N/A

8 Validation and Verification

8.1 Verification

Verification was performed according to the ISRM Rulebook [6] following the ISRM Verification Guidelines [7]. This includes use of verification scripts. Verification is partly automatic, partly semi-automatic and partly manual.

8.1.1 Verification Results

The verification reports for the service can be found in the Verification Reports directory located in the D65 delivery package:

Designed_Services_-_IntegratedDigitalBriefing.xls

Designed_Services_-_IntegratedDigitalBriefing_Common.xls

Based on the results in the verification reports the service has been successfully verified.

8.2 Validation

This service has currently not been validated.

9 References

Name	Version	Document ID / Location
[1] Project deliverables template	03.00.00	SJU templates & guidelines package, Project deliverables template.dot
[2] OSED template	03.00.00	SJU templates & guidelines package, SESAR Operational Service and Environment Definition.dot
[3] SPR template	03.00.00	SJU templates & guidelines package, SESAR Safety and Performance Requirements.dot
[4] ISRM Tooling Guidelines	00.07.00	08.03.10 Deliverable D44
[5] ISRM Modelling Guidelines	00.07.00	08.03.10 Deliverable D44
[6] ISRM Rule Book	00.07.00	08.03.10 Deliverable D44
[7] ISRM Verification Guidelines	00.07.00	08.03.10 Deliverable D44
[8] EATMA Guidance Material	00.04.02	B.04.01 D66
[9] ISRM service portfolio	00.08.01	08.03.10 Deliverable D65
[10] Operational Service and Environment Definition (OSED) - Digital Integrated Briefing	00.01.01	13.02.02 D19
[11] Geographic information – Web feature service	2010	ISO 19142:2010
[12] IWXXM	1.1	http://www.wmo.int/pages/prog/www/WIS/wiswiki/tiki-index.php?page=AvXML-1.1-Release
[13] EUROCAE/RTCA, ED-99C - User Requirements for Aerodrome Mapping Information	C	http://www.eurocae.net
[14] EUROCAE/RTCA, ED-119B - Interchange Standards For Terrain, Obstacle, And Aerodrome Mapping Data	B	http://www.eurocae.net
[15] Service Coordination Group, Minutes of Meeting	N/A	SCG29 Service Activity Initiation Digital Briefing SVA013

-END OF DOCUMENT-