European ATM Service Description for the DeparturePlanningInformation Service

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Abstract

The notion of "Departure Management information" (DPI) is operationally established in the form of a message in the portfolio of NM Flight Progress Messages, that is to be sent to the NM system by a suitable Airport system. The "Advanced Tower integration" concept seeks to extend the benefit of having accurate departure planning data available for network management purposes to smaller airports that do not deploy Airport CDM.

Additionally it was identified that the Arrival Management (AMAN) at arrival airport needs to receive predicted Target Take-Off Times from the satellite airports within their extended horizon. DPI

(Departure Planning Information) messages, as generated today, give the best available prediction of that take-off time.

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Rational for rejection

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This deliverable consists of SJU foreground.

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Executive summary

The operational concept of TS-305-A requires that Arrival Management Information needs to be **provided** to regional airports within the Extended AMAN Horizon. An important feature of this concept is that, complementary to *IER-5.6.4-IERS-0032-0050*, Arrival Management needs to **consume** departure planning information from Satellite Airports. Indeed, Ref. [8] (Project 05.06.04 D35 Final OSED) describes a logical protocol for this bidirectional communication.

It is important to appreciate the concept of a satellite airport underlying this OI step. The situation envisaged is that there are local airports within the AMAN horizon that feed aircraft into the arrival flows managed by the Extended AMAN. That is, the operations in question will be short-haul flights into a hub airport.

The notion of “Departure Planning Information” (DPI) is operationally established in the form of a message in the portfolio of NM Flight Progress Messages that is to be sent to the NM system by a suitable Airport system. This service enables non-CDM ATC Towers to transmit there departure information to the network manager.

1 Introduction

1.1 Purpose of the document

The purpose of this Service Description Document (SDD) is to provide a description of the services designed within SESAR.

The purpose of the SDD is to provide a complete design description of each service, to describe the services to such a level that it is possible to make decisions on the implementation of the services in activities such as Service Implementation and evolution planning. The document serves as a complement to a model based description and supports the configuration management process by providing well-defined baselines.

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

- 06.05.04-D16-OFA 05.01.01 Consolidated OSED edition 3 document (Part1).docx [11]
- 05 06 04 -D34- Consolidated SPR_INTEROP_ final_01 01 00.docx [9]
- Project 05.06.04 D35 Final OSED [8]

1.4 Glossary of terms

N.A.

1.5 Acronyms and Terminology

1.5.1 Acronyms

Term	Definition
ADD	Architecture Description Document
AMAN	Arrival Manager
AOR	Area of Responsibility
AOI	Area of Interest
APTT	AMAN Planned Threshold Time
ATM	Air Traffic Management
E-ATMS	European Air Traffic Management System
FAA	Federal Aviation Administration
IER	Information Exchange Requirement

Term	Definition
ISRM	Information Service Reference Model
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
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
TMA	Terminal Manoeuvring Area
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	The collective ability to deliver a specified type of effect or a specified course of action. Within the context of the SESAR Programme a capability is therefore the ability to support the delivery of a specific operational concept to an agreed level of	Common working meeting between B41 EA study and B43 T5

Term	Definition	Source
	performance.	
Capability Configuration	A combination of organisational aspects (with their competencies) and equipment that combine to provide a capability. A Capability Configuration represents a recognisable set of resources (technical systems, human roles, and physical assets) derived from a generic stakeholder organisation. Note: Capability Configuration is a term used in NAF. The equivalent SoaML stereotype to be used is Participant. Also see note in Node term definition.	B43 ADD
Node	A logical entity that performs Operational Activities specified independently of any physical realisation e.g. a stakeholder type providing and/or consuming operational information within a network of others. Note: Node is a term used in NAF. The equivalent SoaML stereotype to be used is Participant. Be aware that the original intention of SoaML is that Participants are physical items and not logical constructs. Service architects must indicate whether the Participant is a logical (Node) or a physical (Capability Configuration) construct.	Common working meeting between B41 EA study and B43 T5
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.	B43 T5 study
Service attribute	A Service Attribute defines a property of a service. Examples: Response time, Frequency of invocation, Message Exchange Pattern.	B43 T5 study
Service contract	A service contract represents an agreement between the stakeholders involved for how a service is to be provided and consumed.	B43 T5 study
Service function	A Service function describes what functionality is needed to provide or consume a service; it is the trigger for or is triggered by the Service interactions. A Service function can be automated to different extents depending on the context e.g. a Service function supporting a complex activity may need more automation than a Service function for a simple activity. Note: The equivalent SoaML stereotype is Capability, in WP8 Foundation documentation referred to as Service Capability.	B43 T5 study
Service interaction	A Service interaction is a description of an information exchange between ATM stakeholders' systems which can potentially be automated; phone calls / voice exchanges are considered as non-automated service interactions. In considering automated interactions, a service interaction is described by several modelling artefacts depicting the static	B43 T5 study

Term	Definition	Source
	and dynamic behaviour of a service. This includes service operations, data messages model and interaction behaviour.	
Service interface	The mechanism by which a service communicates. Service providers and consumers need to implement service interfaces to be able to collaborate. A service interface includes service operations that enable access to the functionality of the services identified, as well as the data used in the service interaction.	B43 T5 study

2 Service identification

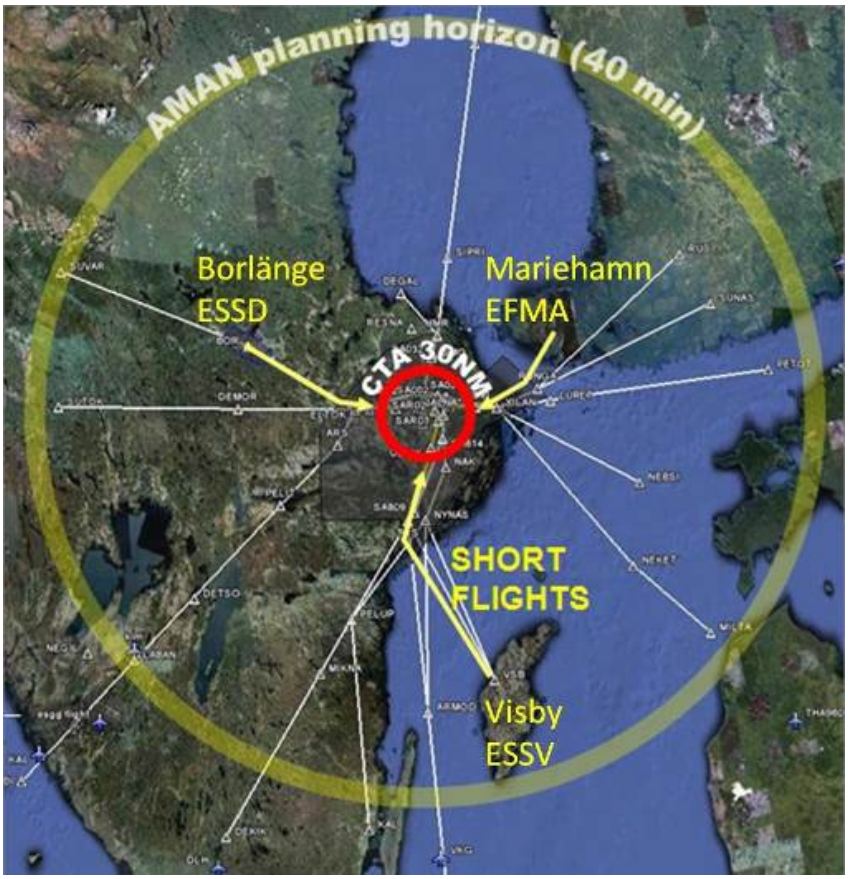
Name	DeparturePlanningInformation
ID	{8964DCE0-A962-4468-95ED-1417CEAF1780}
Version	2.0
Keywords	DPI, Departure Management, Arrival Management, CDM, E-AMAN
Architect(s)	Service Architect: [redacted] DFS Information Architect: [redacted] DFS

Lifecycle status	Date	References
Identified	N.A.	According to the decision of the SCG the service identification was skipped.
Allocated	N.A.	Not yet allocated
Designed	11/11/2015	This document
Validated	N.A.	no SESAR 1 validation exercise identified
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

AMAN ext. Horizon and DPI

It is important to appreciate the concept of a satellite airport. The situation envisaged is that there are local airports within the AMAN horizon that feed aircraft into the arrival flows managed by the Extended AMAN. That is, the operations in question will be short-haul flights into a hub airport. The following diagram (from [8]) shows a typical setting, note that Mariehamn, Borlänge and Visby are regional airports towns feeding the hub in the capital.



This implies that the “satellite airport” is considered NOT to be another hub – the case of interacting hubs is dealt with in OI steps TS-305-B and TS-301. The assumption is therefore that the “satellite airport” is not a CDM airport (future AOP airport) but operates on a much smaller scale.

The present technical note [7] compiles the pertinent requirements from Ref. [8] and the corresponding SPR/INTEROP document [9]. It also takes note of related information flows that exist today so would not show up in the SESAR “Operational improvement” view.

NM DPI messages

The notion of “Departure Planning Information” (DPI) is operationally established in the form of a message in the portfolio of NM Flight Progress Messages that is to be sent to the NM system by a suitable Airport system. The following table shows the composition of this message

Field-name	E-DPI	T-DPI-t, T-DPI-s	A-DPI	C-DPI
TITLE DPI	**M**	**M**	**M**	**M**
DPISTATUS	M	M	M	M
ARCID	M	M	M	M
ADEP	M	M	M	M
ADES	M	M	M	M
EOBT [1)]	M	M	M	M
EOBD [1)]	M	M	M	M
TOBT	O	HD	--	--
TSAT	--	HD	--	--
TAXITIME	M	M	M	--
TTOT	O	M	M	--
SOBT	O [2)]	--	--	--
SOBD	O [2)]	--	--	--
AOBT	--	--	O	--
AOBD	--	--	O	--
SID	HD	HD	M	--
ARCTYP	HD	HD	HD	--
REG	HD	HD	HD	--
DEPSTATUS	O	O	O	--
REASON	--	--	--	O or M [3)]
IFPLID [1)]	HD	HD	HD	HD
ORIGIN	O	O	O	O

Here “M” indicates mandatory information. The table clearly shows that the key purpose of this message is the transmission of TTOTs. The specific notions of E-DPI, T-DPI, A-DPI and C-DPI are related to the maturity status of the information. The precise criteria (including trigger conditions for sending the message) are described in Ref. [10] and illustrated by the following diagram

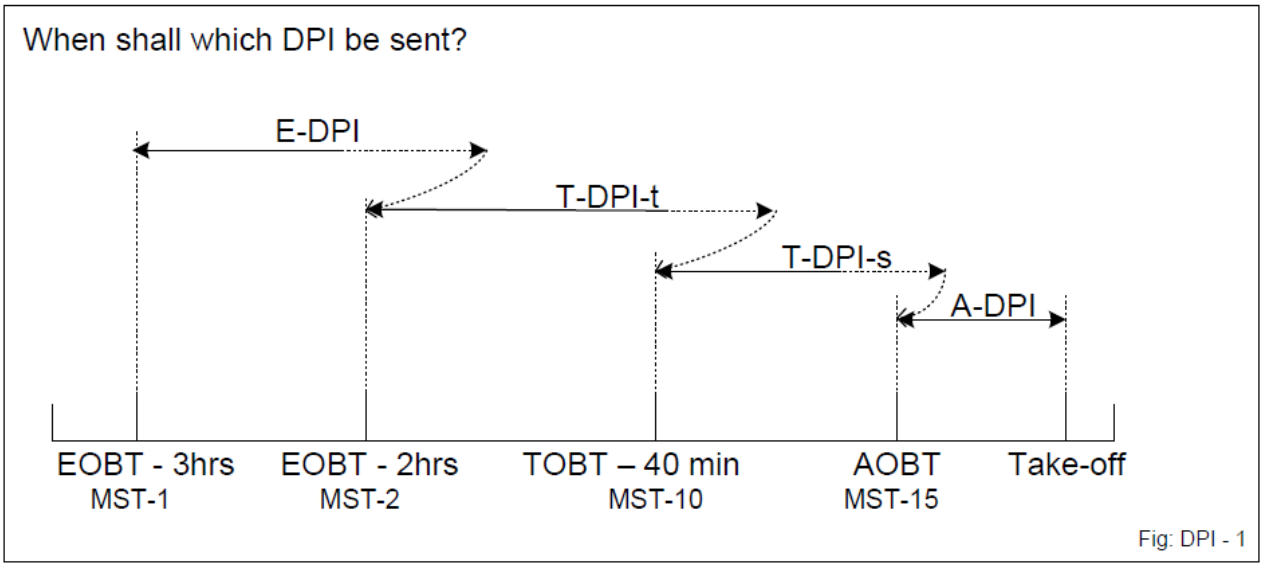


Fig: DPI - 1

Notice that in the E-DPI the take-off time given is actually the first estimate, i.e. it is the ETOT with which the CDM process is initialized from the Flight Plan. This could for instance be the EOBT or the EOBT plus an estimated time for taxi-out and de-icing.

It is important to appreciate that the DPI exchange is designed as the vehicle for providing the network management function with a standardized custom view of the Airport CDM process. Therefore, this specification is bound to evolve with the implementation of tight AOP-NOP integration as developed in SESAR.

Indeed, the OSED of OFA 05.01.01 [11] re-specifies the DPI information flow from an AOP equipped airport. This information exchange is in scope of Service Activity SVA-001.

Advanced ATC Tower integration into the Network

The “Advanced Tower integration” concept [12] seeks to extend the benefit of having accurate departure planning data available for network management purposes to smaller airports that do not deploy Airport CDM. The concept is very simple – on an “advanced ATC TWR airport” the tower sends A-DPI (at off-block time) and C-DPI messages (on return to stand) to the NM Operations Centre.

Pre-departure Coordination

Doc 4444 Chapter 10.1.4.2.1 requires TWR to routinely communicate departure time information to “its” serving FIR to ensure awareness for departure flights climbing into controlled airspace. In an OLDI environment, a PAC message (which contains the ETOT) would be send. This would at take-off time be followed by an ACT message containing the ATOT.

3.1 Information Exchange Requirements

Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-5.6.4-IERS-0032-0060	Departure Planning Information	Satellite Airport	Arrival Management	Flight – Departure Data	Implement Updated Arrival Sequence	See below	<In Progress>	REQ-5.6.4-REQS-0028-0810 -0820	REQ-05.02-DOD-OPR1-0004 <Partial	n/a

Table 1: Information Exchange Requirements

The "Departure Planning Information" Information Element quoted here is defined by the EATMA as:

"'Arrival Management (AMAN) at arrival airport will receive predicted Target Take-Off Times from the satellite airports' (OSED 05.06.04 step 1 V2). DPI (Departure Planning Information) messages, as generated today, give the best available prediction of take-off time."

The OSED [8] requirements quoted as rationale are specific about the details of the information flow:

Identifier	REQ-05.06.04-OSED-0028.**0810**
Requirement	AMAN shall receive the following data for subject flight from Satellite airport within Eligibility Horizon: • Call sign • Departure Aerodrome • Destination Aerodrome • TTOT • New TTOT in case of update • Aircraft Type • Runway • SID or TMA Exit point
Title	AMAN Reception of TTOT
Status	<In Progress>
Rationale	Data shall be transmitted when TTOT is available, to be used by AMAN to update arrival sequence. This data shall be received when a new subject flight becomes available and/or a new TTOT (a revised TTOT outside a defined window) becomes available.

Identifier	REQ-05.06.04-OSED-0028.**0820**
Requirement	AMAN shall receive the following data update for subject flight at regional airport: • Call sign • Revised TTOT • Runway • SID or TMA Exit point
Title	AMAN Reception of TTOT /revised TTOT
Status	<In Progress>
Rationale	AMAN receive information on flight progress at regional airport - TTOT or revised TTOT

SPR Requirements for TS-305-A related to DPI

[REQ]

Identifier	REQ-05.06.04-SPR-0034.0009
Requirement	Satellite airport shall provide to E-AMAN planned departure information regarding an inbound flight about to depart a satellite airport, prior to the flight's EOBT.
Title	Provide departure planning information - satellite
Status	<In Progress>
Rationale	D34-001-SAR-SR-09 D34-001-SAR-SAT-TWR-N01 Appendix A 244.01
Category	<Safety>
Validation Method	<Real Time Simulation>
Verification Method	<Review of Design>

Informative – see IER-5.6.4-IERS-0032-0050

[REQ]

Identifier	REQ-05.06.04-SPR-0034.0033
Requirement	Satellite TWR shall determine a TTOT for a departing flight inbound to the destination ATSU, compliant with the assigned ground delay.
Title	Process arrival management information at satellite airport
Status	<In Progress>
Rationale	D34-001-SAR-SR-41 Appendix A 244.01
Category	<Safety>
Validation Method	<Real Time Simulation>
Verification Method	<Review of Design>

[REQ]

Identifier	REQ-05.06.04-SPR-0034.0034
Requirement	When Satellite TWR determines that the calculated TTOT cannot be met by the departing flight inbound to the destination ATSU, Satellite TWR shall inform E-AMAN accordingly.
Title	Unable TTOT at satellite airport
Status	<In Progress>
Rationale	D34-001-SAR-SR-42 Appendix A 244.01
Category	<Safety>
Validation Method	<Real Time Simulation>
Verification Method	<Review of Design>

INTEROP Requirements for TS-305-A related to DPI

[REQ]

Identifier	REQ-05.06.07-INTEROP-0060-0010
Requirement	Satellite Airport shall send Departure Planning Information data (REQ-5.6.4-REQS-0028-0810 or REQ-5.6.4-REQS-0028-0820) to the AMAN.
Title	Departure Planning input to AMAN from Satellite Airport
Status	<In Progress>
Rationale	Data Content
Category	<Interoperability>
Validation Method	<Real Time Simulation>

Verification Method	<Inspection>

Name: NAV DeparturePlanningInformation Requirements Traceability
Author: [redacted]
Version: 1.0
Created: 22.10.2015 00:00:00
Updated: 08.04.2016 00:00:00

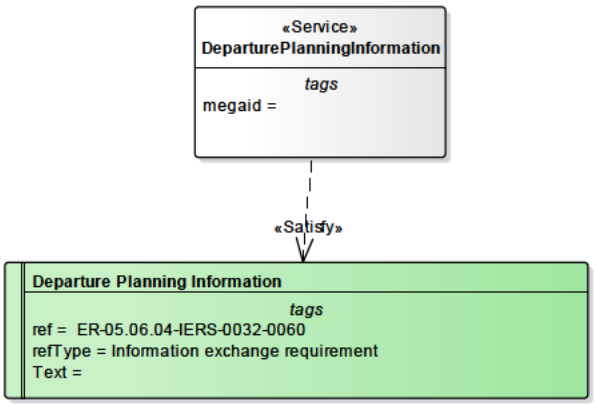


Figure 1: NAV DeparturePlanningInformation Requirements Traceability IER diagram

Element Name	Author	Notes
Departure Planning Information	[redacted]	Departure Planning Information

	Element Tagged Value Name	Value
	ref	IER-05.06.04-IERS-0032-0060
	refType	Information exchange requirement
	Text	

Table 2: Requirements Traceability

3.2 Other Requirements

3.2.1 Non-Functional Requirements

N.A.

3.2.2 Relevant Industrial Standards

N.A.

3.2.3 Nodes

This chapter shows the Service to Nodes Mapping diagram relevant to this service as shown below.

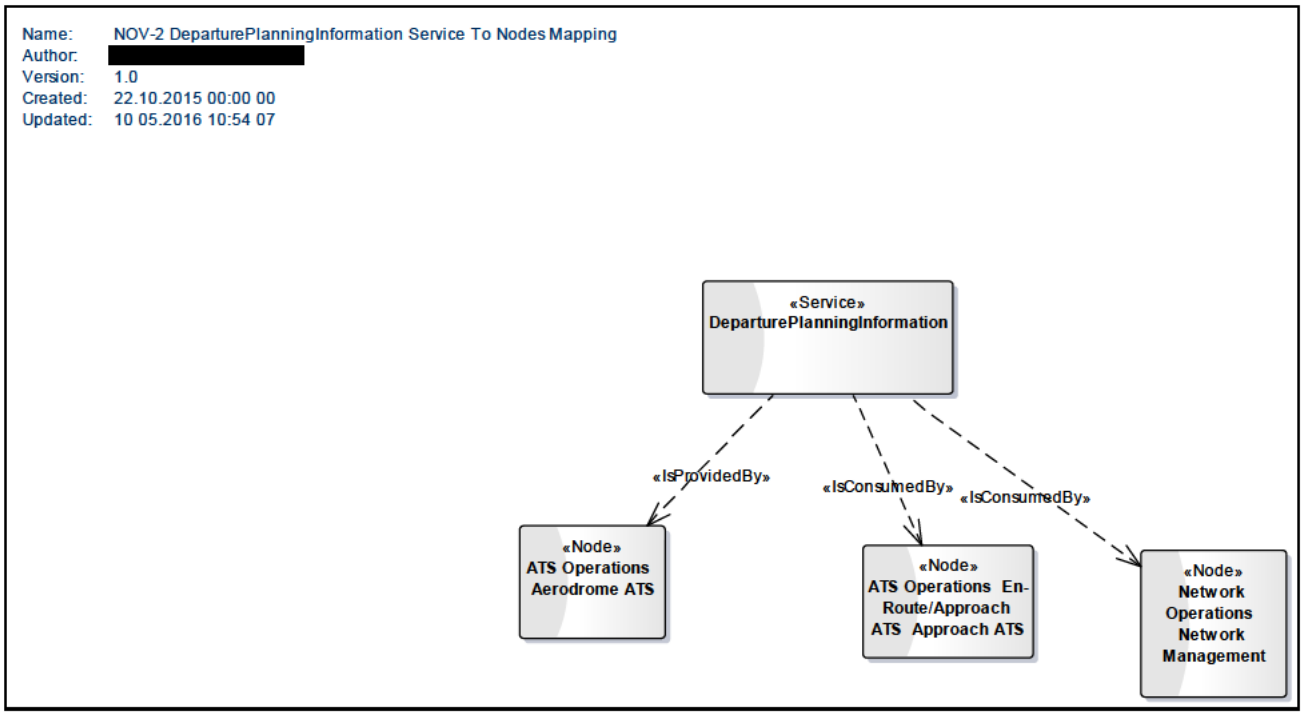


Figure 2: NOV-2 DeparturePlanningInformation Service to Nodes Mapping diagram

4 Service overview

4.1 Service Taxonomy

The service taxonomy is described in the ISRM Service Portfolio document [17].

4.2 Service Levels (NfRs)

Non Functional Requirements are described in section 3.2.1.

4.3 Service Functions and Capabilities

The mapping to Operational Activities is as described in the following figure. The capability mapping is shown in combination with the interface definition in chapter 4.4.

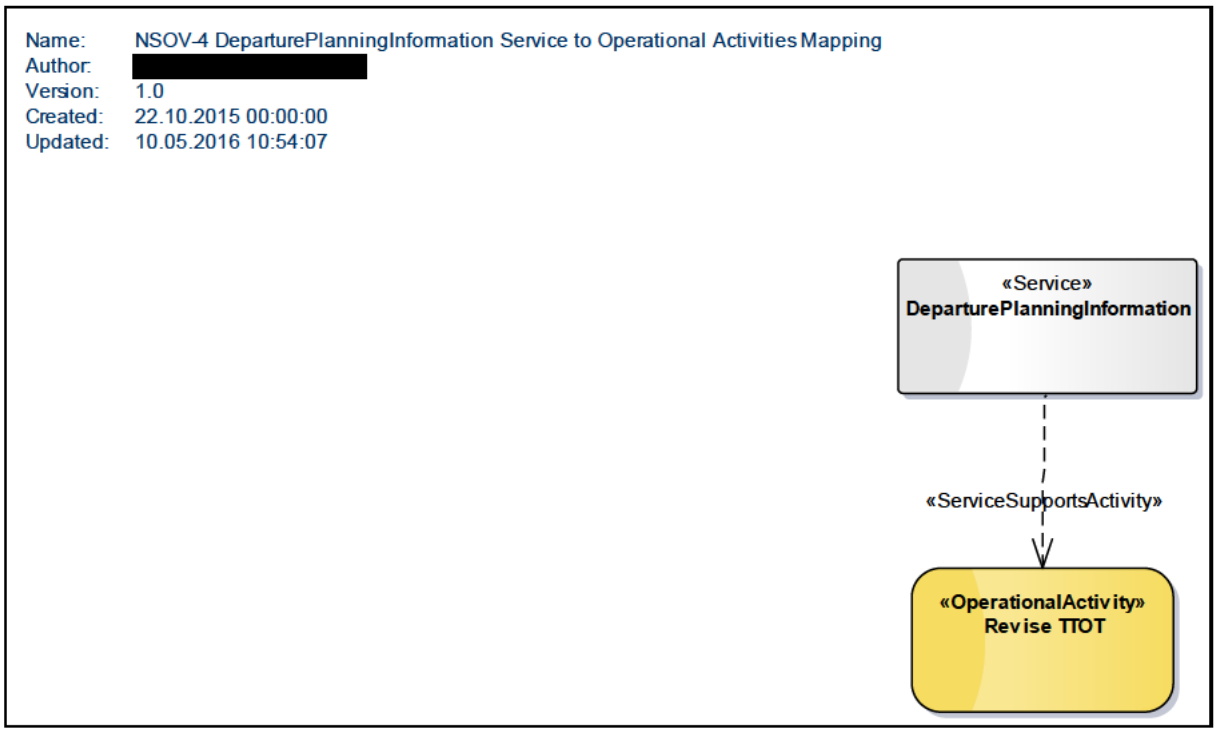


Figure 3: NSOV-4 DeparturePlanningInformation Service to Operational Activities Mapping diagram

4.4 Service Interfaces

The service has a standard pup/sub (push)-interface as stipulated by the standard MEP definition provided within the common are of the ISRM.

The subscription can be done ad hoc. In many cases the communication partners are well known and the subscription might be done offline, e.g. via SLA.

The service is supporting the capability 'Traffic Synchronisation: Arrival Traffic Merging'.

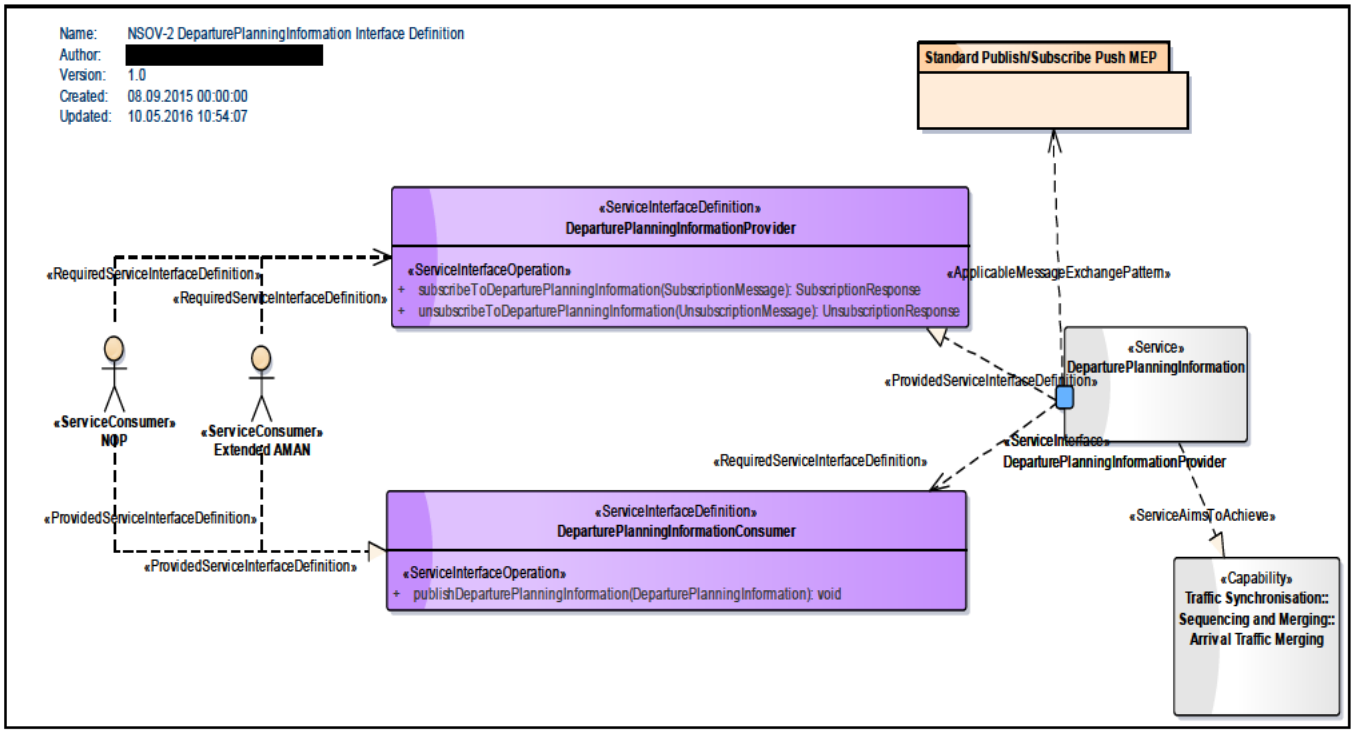


Figure 4: NSOV-2 DeparturePlanningInformation Interface Definition diagram

ServiceInterface	ServiceInterfaceDefinition	ServiceInterfaceOperation	Role
DeparturePlanningInformationProvider	DeparturePlanningInformationProvider	subscribeToDeparturePlanningInformation	provided
DeparturePlanningInformationProvider	DeparturePlanningInformationProvider	unsubscribeToDeparturePlanningInformation	provided
DeparturePlanningInformationProvider	DeparturePlanningInformationConsumer	publishDeparturePlanningInformation	consumed

Table 3: Service Interfaces

5 Service interface specifications

This chapter describes the details of each interface. The Service Interface specification only covers the static design description while the dynamic design (behaviour) is described in chapter 6.

The static interface description is vital since it describes how the interfaces shall be constructed.

Architectural elements applicable for this description are:

- Service Interfaces
- Service Interface Definitions
- Operations
  Function or procedures which enable programmatic communication with a Service via a Service interface.
- Parameters
  Constants or variables passed into or out of a Service interface as part of the execution of an Operation.

For the service interface description, UML-views refer to chapter 4.4.

5.1 Service Interface DeparturePlanningInformationProvider

The provider interface just provides the capability to subscribe and unsubscribe to the DPI service.

5.1.1 Service Interface Definition DeparturePlanningInformationProvider

5.1.1.1 Operation subscribeToDeparturePlanningInformation

5.1.1.1.1 Operation Functionality

Synchronous operation for the subscription to DPI data.

5.1.1.1.2 Operation Parameters

Input Parameters

SubscriptionMessage: containing the destination airport in view.

Output Parameters: Subscription Response

5.1.1.2 Operation unsubscribeToDeparturePlanningInformation

5.1.1.2.1 Operation Functionality

Synchronous operation for the un-subscription to DPI data.

5.1.1.2.2 Operation Parameters

Input Parameters: Unsubscribe message

Output Parameters: Unsubscription response

5.1.2 Service Interface Definition DeparturePlanningInformationConsumer

This describes the consumer interface to which the provider will end the DPI information.

5.1.2.1.1 Operation publishDeparturePlanningInformation

5.1.2.1.2 Operation Functionality

Asynchronous operation to exchange the DPI.

5.1.2.1.3 Operation Parameters

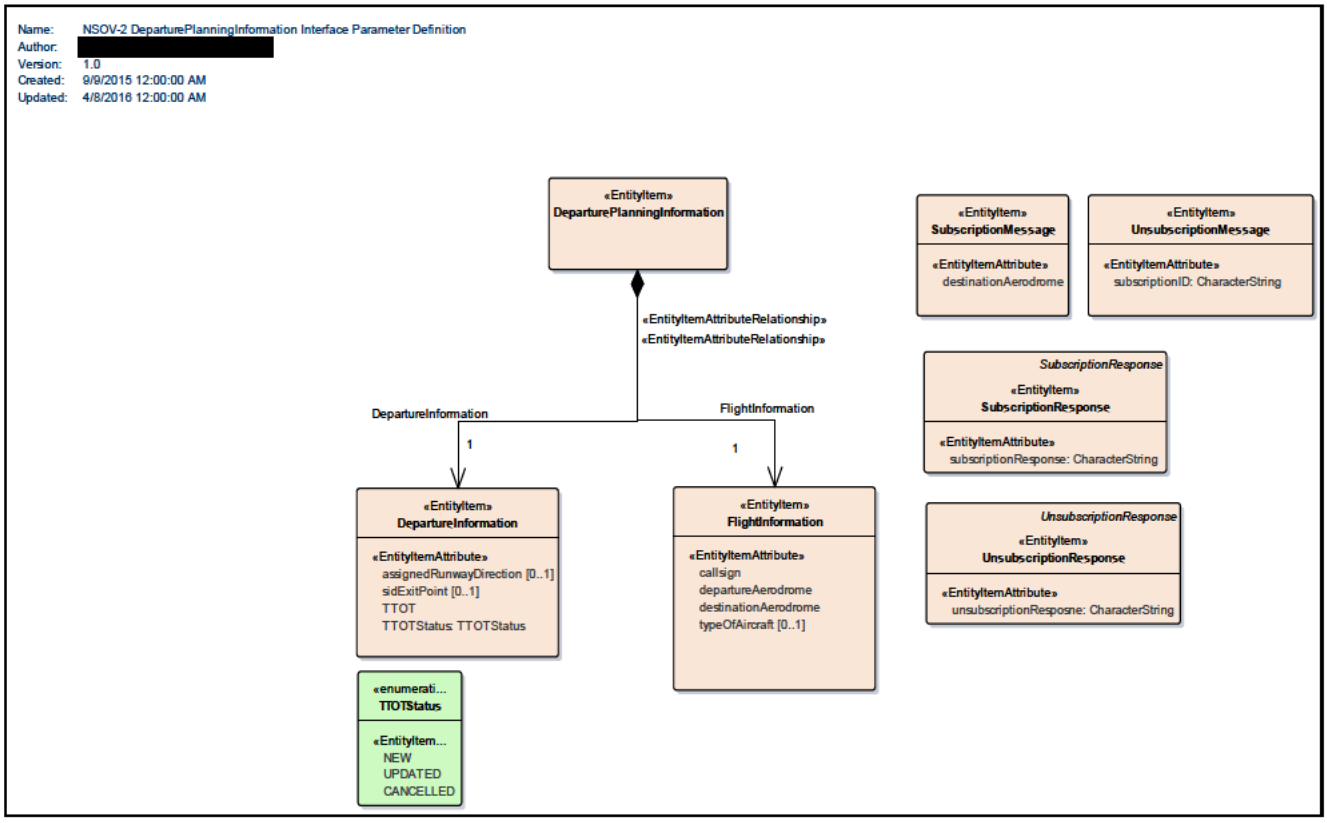


Figure 5: NSOV-2 DeparturePlanningInformation Interface Parameter Definition

Input Parameters

DeparturePlanningInformation: containing the main payload, the DPI information.

Output Parameters

None

5.2 Payloads

Within this chapter a comprehensive list of all payload elements is provided.

Element Name	Author	Notes
DepartureInformation	[redacted]	Target times and used resources.

Attribute Name	Type	Notes
assignedRunwayDirection		runway operation mode

Tagged Value Name	Value
CLDMContextTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:ATMServiceDeliveryManagement:DepartureClearance@departureRunway
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:RunwayDirection@designator

Attribute Name	Type	Notes
sidExitPoint		Exit point of the departure proceedure

Tagged Value Name	Value
CLDMContextTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:DepartureOperations@sid
CLDMContextTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:RouteAndProcedure:SegmentLeg@endTerminalSegmentPoint
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspaceInfrastructurePoint:SignificantPoint@designator

Attribute Name	Type	Notes
TTOT		Target Take Of Time

Tagged Value Name	Value
CLDMContextTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Common:Codelists:CodePlanningStatusType@TARGET
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:TakeOff@time

Attribute Name	Type	Notes
TTOTStatus	TTOTStatus	TTOT Status

Tagged Value Name	Value
CLDMSemanticTrace	CLDM_out_of_scope

Element Name	Author	Notes
DeparturePlanningInformation	[redacted]	Data shall be transmitted when TTOT is available, to be used by AMAN to update arrival sequence. This data shall be received when a new subject flight becomes available and/or a new TTOT (a revised TTOT outside a defined window) becomes available.

Element Name	Author	Notes
FlightInformation	[redacted]	Flight from satellite airport to destination airport of E-AMAN

Attribute Name	Type	Notes
callsign		Callsign

Tagged Value Name	Value
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightIdentifier:AircraftIdentification

Attribute Name	Type	Notes
departureAerodrome		departure aerodrome

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

Attribute Name	Type	Notes
destinationAerodrome		destination aerodrome

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

Attribute Name	Type	Notes
typeOfAircraft		Aircraft Type

Tagged Value Name	Value
CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftType@icaoIdentifier

Element Name	Author	Notes
SubscriptionMessage	[redacted]	As the satellite airports of an extended AMAN are well known it seems also appropriate to establish a permanent subscription externally (e.g. via SLA between the airports).

Attribute Name	Type	Notes
destinationAerodrome		destination Aerodrome

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

Element Name	Author	Notes
SubscriptionResponse	[redacted]	subscription response

Attribute Name	Type	Notes
subscriptionResponse	CharacterString	Subscribe Response

Tagged Value Name	Value

	CLDMSemanticTrace	CLDM_out_of_scope	
Element Name		**Author**	**Notes**
UnsubscriptionMessage		[redacted]	Unsubscription Message
	Attribute Name	**Type**	**Notes**
	subscriptionID	CharacterString	ID of subscription
	Tagged Value Name	**Value**	
	CLDMSemanticTrace	CLDM_out_of_scope	
Element Name		**Author**	**Notes**
UnsubscriptionResponse		[redacted]	unsubscription resposne
	Attribute Name	**Type**	**Notes**
	unsubscriptionResposne	CharacterString	Unsubscribe Response
	Tagged Value Name	**Value**	
	CLDMSemanticTrace	CLDM_out_of_scope	
Element Name		**Author**	**Notes**
TTOTStatus		[redacted]	Status of TTOT
	Attribute Name	**Type**	**Notes**
	NEW		First assignment of the TTOT
	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Codelists:CodeTargetTimeStatusType@NEW	
	Attribute Name	**Type**	**Notes**
	UPDATED		Update of an assigned TTOT
	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Codelists:CodeTargetTimeStatusType@UPDATED	
	Attribute Name	**Type**	**Notes**
	CANCELLED		TTOT canceled
	Tagged Value Name	**Value**	
	CLDMSemanticTrace	urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Codelists:CodeTargetTimeStatusType@CANCELLED	
Element Name		**Author**	**Notes**
<anonymous>		[redacted]	
Element Name		**Author**	**Notes**
DeparturePlanningInformation		[redacted]	Arrival Management needs to **consume** departure planning information from Satellite Airports. It is important to appreciate the concept of a satellite airport underlying this service. The situation envisaged is that there are local airports within the AMAN horizon that feed aircraft into the arrival flows managed by the Extended AMAN. That is, the operations in question will be short-haul flights into a hub airport. This information is transmitted prior to the flights EOBT. In addition the "Advanced Tower integration" concept seeks to extend the

			benefit of having accurate departure planning data available for network management purposes to smaller airports that do not deploy Airport CDM. The concept is very simple – on an "advanced ATC TWR airport" the tower sends A-DPI (at off-block time) and C-DPI messages (on return to stand) to the NM Operations Centre.
	Element Tagged Value Name		**Value**
	megaid		
Element Name		**Author**	**Notes**
Extended AMAN		[redacted]	The extended AMAN System which is feeded with departing aircrafts from a satellite airport.
Element Name		**Author**	**Notes**
NOP		[redacted]	The NM Operations Center will receive DPI information from advanced towers (non-CDM).
Element Name		**Author**	**Notes**
DeparturePlanningInformationConsumer		[redacted]	Service Interface Definition for Consuming Interface.
	Element Tagged Value Name		**Value**
	megaid		
Element Name		**Author**	**Notes**
DeparturePlanningInformationProvider		[redacted]	Service Interface Definition for providing Interface.
	Element Tagged Value Name		**Value**
	megaid		

Table 4: Payload tracing to AIRM

6 Service dynamic behaviour

This chapter is used to describe the interactive behaviour between Services (orchestration) or Service Interfaces (interaction specification). Architectural elements applicable for this description are:

- Service Interaction Specifications
- Service State machines
- Service orchestration

6.1 Service Interface 'DeparturePlanningInformationProvider'

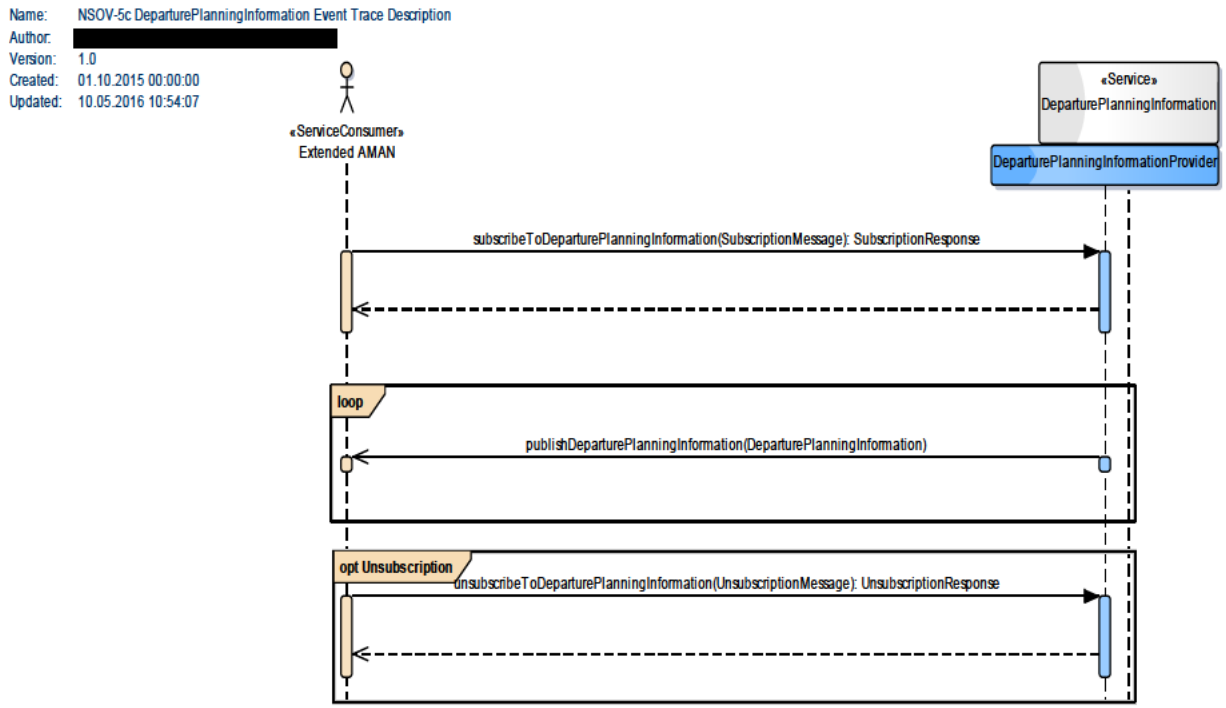


Figure 6: NSOV-5c DeparturePlanningInformation Event Trace Description

7 Service provisioning (optional)

N.A.

8 Validation and Verification

8.1 Verification

Verification was performed relying on the ISRM foundation version 00.07.00.

8.1.1 Verification Results

The details of the verification are shown in the verification report [18].

Service name:	Designed Services - DeparturePlanningInformationService	Date of Service Creation:	20150908-18:06:25
Service version:	2	Version of Verification Rules:	00.07.00
Phase:	2	Date of Verification:	20160421-07:11:40
Owner of service:	[redacted]	Passes:	167
Name of verifier:		Failures:	0
Overall comments:		Manual:	0
MDG Library Functions version:	29324	MDG ISRM Verification version	29324

Figure 7: Verification results

The verification was performed via manual inspection and assisted by a script. The verification outcome is completely free of errors.
Verification reports are these files [20]:

- Designed_Services_-_DepartureManagementInformationService.xls

8.2 Validation

N.A.

9 References

Name	Version	Docment ID / Location
[1] FAA Web Service Description Document	2008-16-10	http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/atc_comms_services/swim/documentation/media/briefings/WSDD%20FPS%20EXAMPLE%2008-16-10.pdf
[2] NATO Architecture Framework	v3.0 & 3.1	http://www.nhqc3s.nato.int/
[3] SoaML	1.0 Beta 09-04-01	http://www.omg.org/spec/SoaML/
[4] Project deliverables template	03.00.00	SJU templates & guidelines package, Project deliverables template
[5] SESAR Operational Service and Environment Definition	03.00.00	SJU templates & guidelines package, OSED template
[6] SESAR Safety and Performance Requirements	03.00.00	SJU templates & guidelines package, SPR template
[7] Technical Note to 5.6.4 OSED/SPR/INTEROP - Step 1	00.01.01	05.06.07 D06
[8] Final OSED	01.00.00	05.06.04 D35
[9] Consolidated SPR-INTEROP	01.01.00	05.06.04 D34
[10] Network Manager “DPI Implementation Guide”	00.01.00	http://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/dpi-impl-guide.pdf
[11] OFA 05.01.01 Consolidated OSED edition 3 document	00.03.01	06.05.04 D16
[12] Network Manager “Advanced ATC TWR Implementation Guide”	00.01.00	https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/advanced-atc-twr-implementation-guide.pdf
[13] ISRM Tooling Guidelines	00.07.00	08.03.10 D44
[14] ISRM Modelling Guidelines	00.07.00	08.03.10 D44
[15] ISRM Foundation Rulebook	00.07.00	08.03.10 D44
[16] ISRM Verification Guidelines	00.07.00	08.03.10 D44
[17] ISRM Service Portfolio	00.08.01	08.03.10 D65
[18] Verification reports for the service	N/A	08.03.10 D65 Verification reports

-END OF DOCUMENT-