



European ATM Service Description for the FlightPlanDataDistribution 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 FlightPlanDataDistribution Service
Deliverable ID	D65
Edition	00.03.01
Template Version	02.00.02

Task contributors

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

Abstract

This document contains the updated version of the service description for the Flight Plan Data Distribution service produced for ISRM 2.0.

The FlightPlanDataDistribution Service supports the service provider (Network Manager) to:

- send a copy of a valid Extended Flight Plan (EFPL) message, Extended Modification (ECHG) message, Extended Delay (EDLA) message to the service consumers (ATC units) concerned by the flight that want to receive extended flight plan messages;

- send to all of other service consumers (ATC units) concerned by the flight only a copy of the ICAO Flight Plan included in the EFPL message or a copy of a 'simple' modification (CHG) message or a copy of a 'simple' delay (DLA) message;
- notify to the service consumers (ATC units) the cancellation of a specified flight plan;
- send a specific Flight Plan (in Extended or ICAO format) following a specific request from a service consumer (AU or ATC unit).

Authoring & Approval

Prepared By - <i>Authors of the document.</i>		
Name & Company	Position & Title	Date
██████████/ENAV(IDS)	██████████	01/06/2016
██████████ ENAV(IDS)	██████████	01/06/2016

Reviewed By - <i>Reviewers internal to the project.</i>		
Name & Company	Position & Title	Date
██████████ ENAV(IDS)	██████████	01/06/2016
██████████ ENAV(IDS)		01/06/2016
██████████ FINMECCANICA		31/05/2016
██████████ NORACON		23/02/2015
██████████ DFS		23/02/2015
██████████ NORACON		01/06/2016
██████████ NORACON		01/06/2016
██████████ NORACON		01/06/2016

Reviewed By - <i>Other SESAR projects, Airspace Users, staff association, military, Industrial Support, other organisations.</i>		
Name & Company	Position & Title	Date
██████████ EUROCONTROL	██████████	22/05/2015
██████████ EUROCONTROL		27/04/2015
██████████ EUROCONTROL		22/05/2015
██████████ INDRA		22/05/2015
██████████ INDRA		22/05/2015
██████████ FINMECCANICA		22/05/2015
██████████ EUROCONTROL		22/05/2015
██████████ AIRBUS		22/05/2015
██████████ LHSYSTEMS		22/05/2015
██████████ EUROCONTROL		22/05/2015
██████████ LHSYSTEMS		30/05/2016
██████████ AIRBUS		19/05/2016

Approved for submission to the SJU By - <i>Representatives of the company involved in the project.</i>		
Name & Company	Position & Title	Date
██████████ NORACON	██████████	01/06/2016
██████████ NORACON		01/06/2016

Rejected By - <i>Representatives of the company involved in the project.</i>		
Name & Company	Position & Title	Date
NA	NA	NA

Rational for rejection		
NA		

Document History

Edition	Date	Status	Author	Justification
00.00.01	13/02/2015	Draft	[REDACTED] / ENAV(IDS)	New Document produced in order to report the model views related to the FlightPlanDataDistribution Service following the Foundation for ISRM 1.3. This service is a refactoring of the ExtendedFlightPlanDistribution Service, as delivered in ISRM 1.1. The input is the "DEL 08.03.10 D61 European ATM Service Description for Extended Flight Plan Distribution Service" document (v.00.02.01).
00.00.02	31/03/2015	Draft	[REDACTED] / ENAV(IDS)	Updated document to include WP8 feedback.
00.00.03	12/05/2015	Draft	[REDACTED] / ENAV(IDS)	Updated document to include feedback from external reviewers and WP8 (provided at the consolidation meeting/SMT-3 for ISRM 1.3).
00.01.00	25/05/2015	Final	[REDACTED] / ENAV(IDS)	Final version for ISRM 1.3 delivery.
00.01.01	15/10/2015	Draft	[REDACTED] ENAV(IDS)	Draft version for the ISRM 1.4.
00.01.02	29/11/2015	Draft	[REDACTED] ENAV(IDS)	Draft review for the ISRM 1.4.
00.02.00	30/11/2015	Final	[REDACTED] ENAV(IDS)	Final version for the ISRM 1.4 delivery.
00.02.01	28/01/2016	Final Update	[REDACTED] ENAV(IDS)	Final version updated according to 08.03.10-D64_SJU_Assessment_report-response.
00.02.02	05/05/2016	Draft	[REDACTED]	SDD initial draft for ISRM 2.0 delivery
00.02.03	17/05/2016	Draft		SDD draft for external review
00.03.00	01/06/2016	Final		Final version for the ISRM 2.0 delivery
00.03.01	20/07/2016	Final update		Updated according to 08.03.10-D65_SJU_Assessment_report_response

Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

Table of Contents

EXECUTIVE SUMMARY	7
1 INTRODUCTION.....	8
1.1 PURPOSE OF THE DOCUMENT	8
1.2 INTENDED READERSHIP	8
1.3 INPUTS FROM OTHER PROJECTS	8
1.4 GLOSSARY OF TERMS	8
1.5 ACRONYMS AND TERMINOLOGY	8
1.5.1 Acronyms.....	8
1.5.2 Terminology.....	10
2 SERVICE IDENTIFICATION.....	11
3 OPERATIONAL AND BUSINESS CONTEXT	12
3.1 INFORMATION EXCHANGE REQUIREMENTS	12
3.2 OTHER REQUIREMENTS.....	15
3.2.1 Non-Functional Requirements.....	15
3.2.2 Relevant Industrial Standards.....	16
3.2.3 Nodes	16
4 SERVICE OVERVIEW	17
4.1 SERVICE TAXONOMY.....	17
4.2 SERVICE LEVELS (NFRs)	17
4.3 SERVICE FUNCTIONS AND CAPABILITIES	17
4.4 SERVICE INTERFACES.....	19
5 SERVICE INTERFACE SPECIFICATIONS.....	21
5.1 SERVICE INTERFACE FLIGHTPLANPUBLISHERINTERFACE	21
5.1.1 Service Interface Definition FlightPlanDataPublisher.....	21
5.1.2 Service Interface Definition FlightPlanDataConsumer.....	24
5.2 SERVICE INTERFACE FLIGHTPLANPROVIDERINTERFACE.....	53
5.2.1 Service Interface Definition FlightPlanProvider	53
6 SERVICE DYNAMIC BEHAVIOUR.....	57
6.1 SERVICE INTERFACE FLIGHTPLANPUBLISHERINTERFACE	57
6.2 SERVICE INTERFACE FLIGHTPLANPROVIDERINTERFACE.....	59
7 SERVICE PROVISIONING (OPTIONAL).....	60
8 VALIDATION AND VERIFICATION.....	61
8.1 VERIFICATION	61
8.1.1 Verification Results	61
8.2 VALIDATION	61
9 REFERENCES	62



List of tables

Table 1: Requirements tracing	15
Table 2: Service Interfaces.....	20
Table 3: Payload tracing to AIRM	23
Table 4: Payload tracing to AIRM	24
Table 5: Payload tracing to AIRM	33
Table 6: Payload tracing to AIRM	46
Table 7: Payload tracing to AIRM	49
Table 8: Payload tracing to AIRM	50
Table 9: Payload tracing to AIRM	52
Table 10: Payload tracing to AIRM	53
Table 11: Payload tracing to AIRM	55

List of figures

Figure 1: NAV FlightPlanDataDistribution Requirements Traceability IER diagram	13
Figure 2: NAV FlightPlanDataDistribution Requirements Traceability NfR diagram.....	15
Figure 3: NOV-2 FlightPlanDataDistribution Service to Nodes Mapping diagram.....	16
Figure 4: NSOV-4 FlightPlanDataDistribution Service to Operational Activities Mapping diagram	18
Figure 5: NSOV-2 FlightPlanDataDistribution Interface Definition diagram	19
Figure 6: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram – Subscription Messages.....	22
Figure 7: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ExtendedFlightPlanMessage.....	25
Figure 8: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram – ICAOFPLMessage	26
Figure 9: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ExtendedUpdateMessages	47
Figure 10: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ICAOUpdateMessages.....	48
Figure 11: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - RequestFlightPlanMessage.....	54
Figure 12: NSOV-5c FlightPlanDataDistribution Event Trace Description for the FlightPlanPublisherInterface.....	58
Figure 13: NSOV-5c FlightPlanDataDistribution Event Trace Description for the FlightPlanProvidertInterface	59



Executive summary

The FlightPlanDataDistribution service addresses the distribution of valid Flight Plans (in Extended format or in ICAO format) from the Network Manager to the ATC Units, and the provision of a specific Flight Plan upon request from an ATC Unit or an AU.

In particular it enables the Network Manager to:

- send valid Extended Flight Plan or updates (modified or delayed) to subscribed ATC Units able to receive Extended Flight Plan messages;
- send valid ICAO Flight Plan or updates (modified or delayed) to subscribed ATC Units not able to receive Extended Flight Plan messages;
- notify the ATC Units when a Flight Plan is cancelled.

Consumers no more interested in the provided information can unsubscribe from the service interface.

Further the FlightPlanDataDistribution service enables the Network Manager to:

- send a specific Flight Plan (either in ICAO or Extended format) upon request performed by an authorized ATC Unit or AU.

The service update, reported in this document, has been performed to align the model and SDD to the ISRM 00.07.00 Foundation.

1 Introduction

1.1 Purpose of the document

The purpose of this Service description is to provide a holistic overview of the FlightPlanDataDistribution 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.

1.2 Intended readership

This service description 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

European ATM Service Description for the FlightPlanDataDistribution Service (See reference [9]).

B4.3 EFPL Service Allocation FT14 (See reference [12])

1.4 Glossary of terms

NA

1.5 Acronyms and Terminology

1.5.1 Acronyms

Term	Definition
ADD	Architecture Description Document
AIRM	ATM Reference Information Model
ATC Unit	Air Traffic Control unit
ATM	Air Traffic Management
AU	Airspace User
CC	Capability Configuration
CHG message	Modification message
CNL message	Cancellation message
DLA message	Delay message
EATMA	European Air Traffic Management Architecture
E-ATMS	European Air Traffic Management System
ECHG message	Extended modification message of the Extended Flight Plan
EDLA message	Extended delay message of the Extended Flight Plan



Term	Definition
EFPL	Extended Flight Plan
FAA	Federal Aviation Administration
FIXM	Flight Information Exchange Model
FPL	Flight Plan
IER	Information Exchange Requirement
IFPS	Integrated Initial Flight Plan Processing System
ISRM	Information Service Reference Model
MEP	Message Exchange Pattern
NAF	NATO Architecture Framework
NM	Network Manager
NSOV	NATO Service Oriented View
NOV	NATO Operational View
NSV	NATO System View
ORM	Operational Reply Message
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
SPR	Safety and Performance Requirements
SWIM	System Wide Information Management
UML	Unified Modelling Language
V&V	Validation and Verification

Term	Definition
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 function	A type of activity describing the functionality of a Service.	EATMA Guidance Material [8]
Service interface	The mechanism by which a service communicates	EATMA Guidance Material [8]

2 Service identification

Name	FlightPlanDataDistribution
ID	{003BA6E3-D3F5-488d-B920-351BF2ABC666}
Version	2.0
Keywords	EFPL, ECHG, EDLA, CHG, DLA, CNL, Extended Flight Plan, ICAO Flight Plan, Extended Modification Message, Extended Delay Message, Modification Message, Delay Message, Cancellation Message, Distribution
Architect(s)	XXXXXXXXXX ENAV(IDS)

Lifecycle status	Date	References
Identified	23/01/2013	European ATM Service Identification for Extended Flight Plan Services (See reference [11])
Allocated	08/07/2013	B4.3 EFPL Service Allocation FT14 (See reference [12])
Designed	01/06/2016	This document
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

The operational context for the FlightPlanDataDistribution service derives from the P07.06.02 OSED (See reference [9]).

This service enables the Network Manager to:

- send a copy of a valid EFPL/ECHG/EDLA message to the ATC units concerned by the flight that want to receive extended flight plan messages;
- send to all of other ATC units concerned by the flight, that do not support the extended format, only a copy of the ICAO flight plan included in the EFPL message or a copy of a “simple” CHG/DLA message;
- notify to the ATC units the cancellation of a specified flight plan;
- send a specific Flight Plan (in Extended or ICAO format) following a specific request from an Airspace User or an ATC unit.

3.1 Information Exchange Requirements

The mapping from FlightPlanDataDistribution Service to the Information Exchange Requirements is shown in Figure 1.

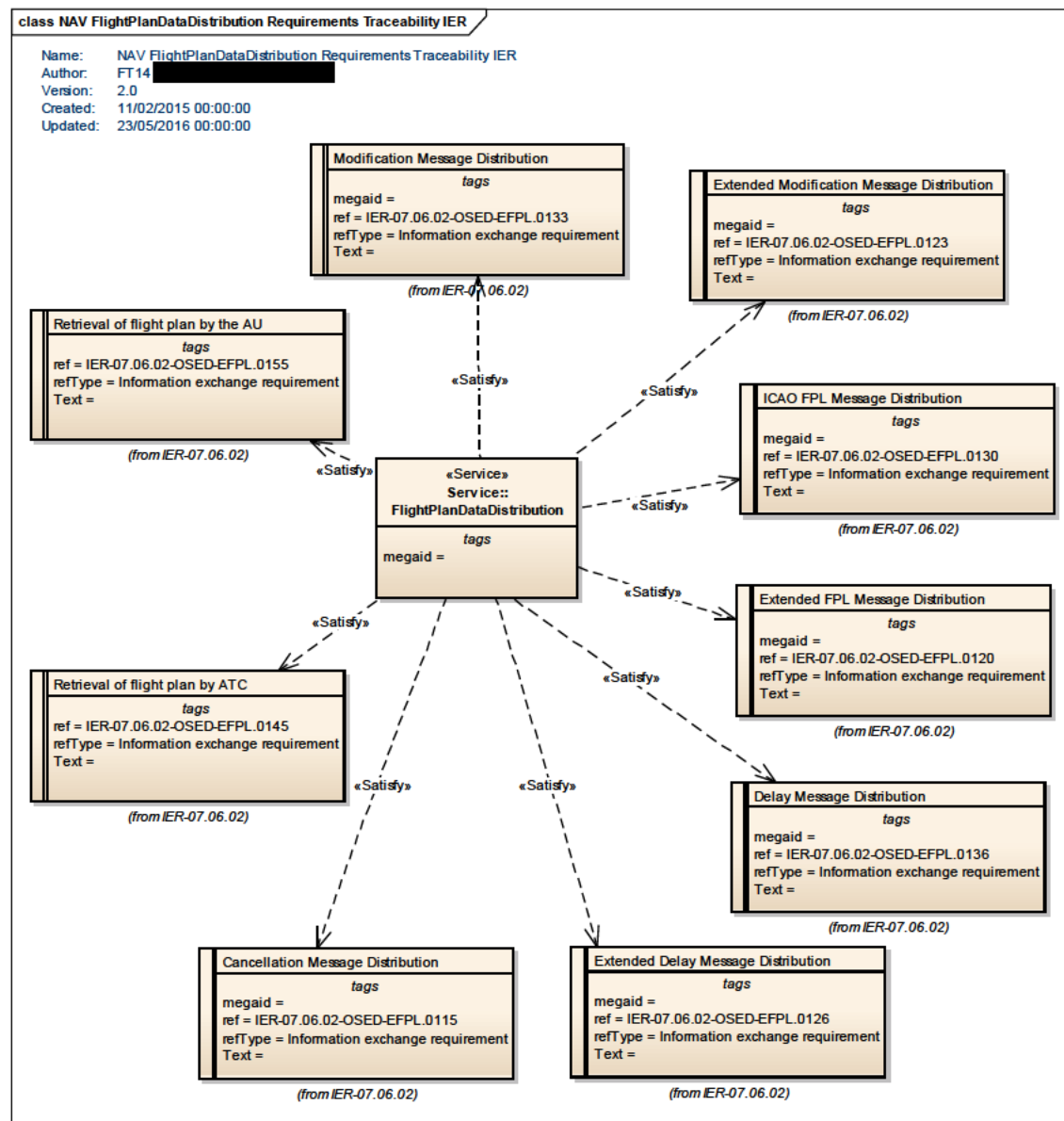


Figure 1: NAV FlightPlanDataDistribution Requirements Traceability IER diagram

Element Name	Author	Notes
Cancellation Message Distribution		The NM shall be able to distribute a cancellation message to ATC units.
Element Tagged Value Name	Value	
megaid		
ref	IER-07.06.02-OSED-EFPL.0115	
refType	Information exchange requirement	
Text		
Element Name	Author	Notes
Delay Message Distribution		The NM shall be able to distribute a DLA message to ATC units not supporting EFPL format.
Element Tagged Value Name	Value	

	megaid	
	ref	IER-07.06.02-OSED-EFPL.0136
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Extended Delay Message Distribution		The NM shall be able to distribute an EDLA message to ATC units supporting EFPL format.
	Element Tagged Value Name	Value
	megaid	
	ref	IER-07.06.02-OSED-EFPL.0126
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Extended FPL Message Distribution		The NM shall be able to distribute an EFPL message to ATC units supporting EFPL format.
	Element Tagged Value Name	Value
	megaid	
	ref	IER-07.06.02-OSED-EFPL.0120
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Extended Modification Message Distribution		The NM shall be able to distribute an ECHG message to ATC units supporting EFPL format.
	Element Tagged Value Name	Value
	megaid	
	ref	IER-07.06.02-OSED-EFPL.0123
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
ICAO FPL Message Distribution		The NM shall be able to distribute an ICAO FPL message to ATC units not supporting EFPL format.
	Element Tagged Value Name	Value
	megaid	
	ref	IER-07.06.02-OSED-EFPL.0130
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Modification Message Distribution		The NM shall be able to distribute a CHG message to ATC units not supporting EFPL format.
	Element Tagged Value Name	Value
	megaid	
	ref	IER-07.06.02-OSED-EFPL.0133
	refType	Information exchange requirement
	Text	
Element Name	Author	Notes
Retrieval of flight plan by ATC	FT14	An ATC unit shall be able to request flight plan data for a given flight to the NM.
	Element Tagged Value Name	Value
	ref	IER-07.06.02-OSED-EFPL.0145
	refType	Information exchange requirement
	Text	

Element Name	Author	Notes
Retrieval of flight plan by the AU	FT14 [REDACTED]	An AU shall be able to request flight plan data for a given flight to the NM.
Element Tagged Value Name	Value	
ref	IER-07.06.02-OSED-EFPL.0155	
refType	Information exchange requirement	
Text		

Table 1: Requirements tracing

3.2 Other Requirements

3.2.1 Non-Functional Requirements

The diagram below shows the Non-Functional Requirements taken from the SPR document (Ref.[20]).

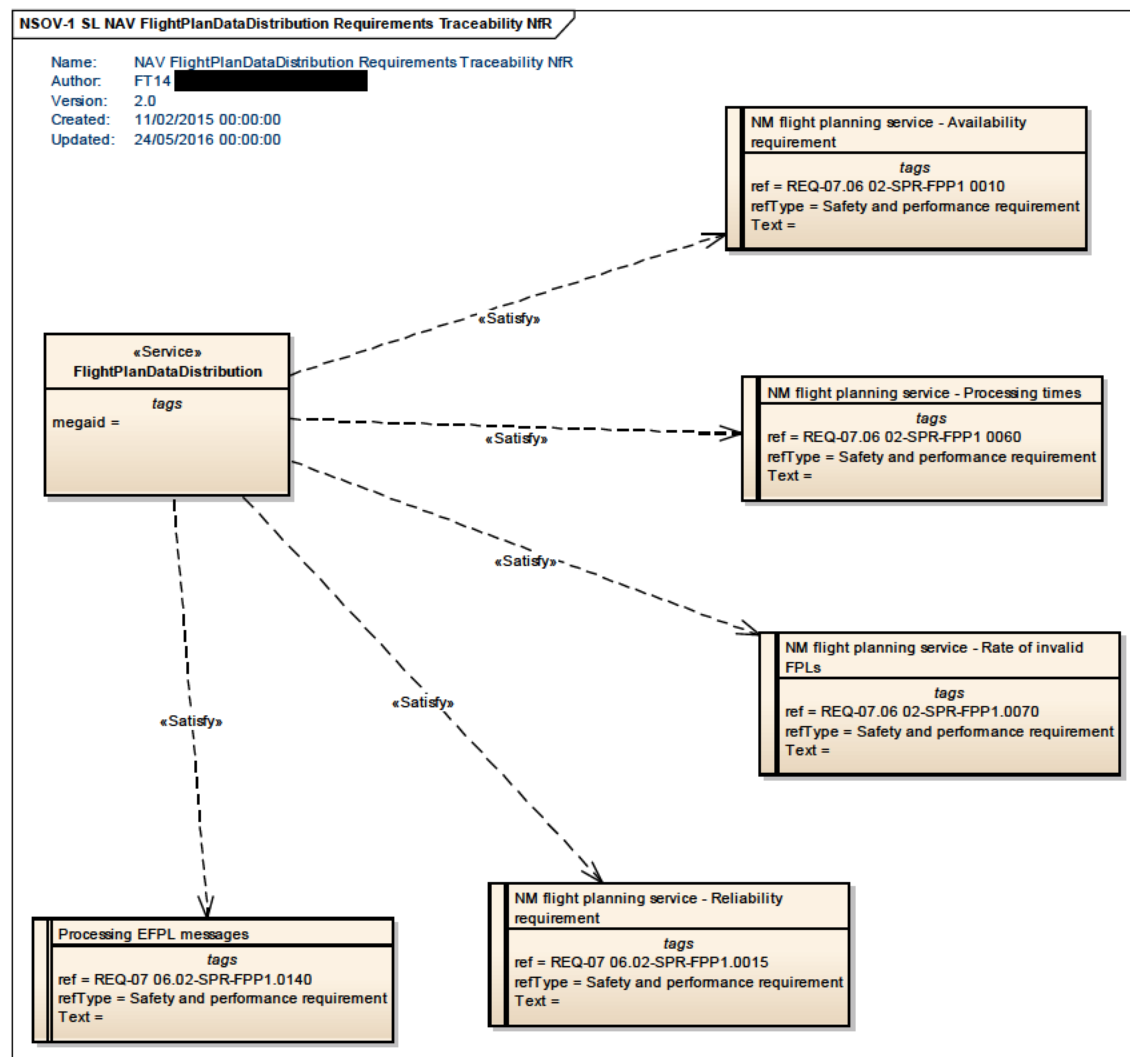


Figure 2: NAV FlightPlanDataDistribution Requirements Traceability NfR diagram

3.2.2 Relevant Industrial Standards

The data described in the P07.06.02 OSED are based on the definitions given in the ICAO Doc 4444 for the 2012 Flight Plan (ICAO Doc 4444 ATM/501 PANS – Air Traffic Management – 15th Edition 2007 Amendment 2).

3.2.3 Nodes

The EATMA nodes specified in the service are shown in the *NOV-2 FlightPlanDataDistribution Service To Nodes Mapping* diagram below:

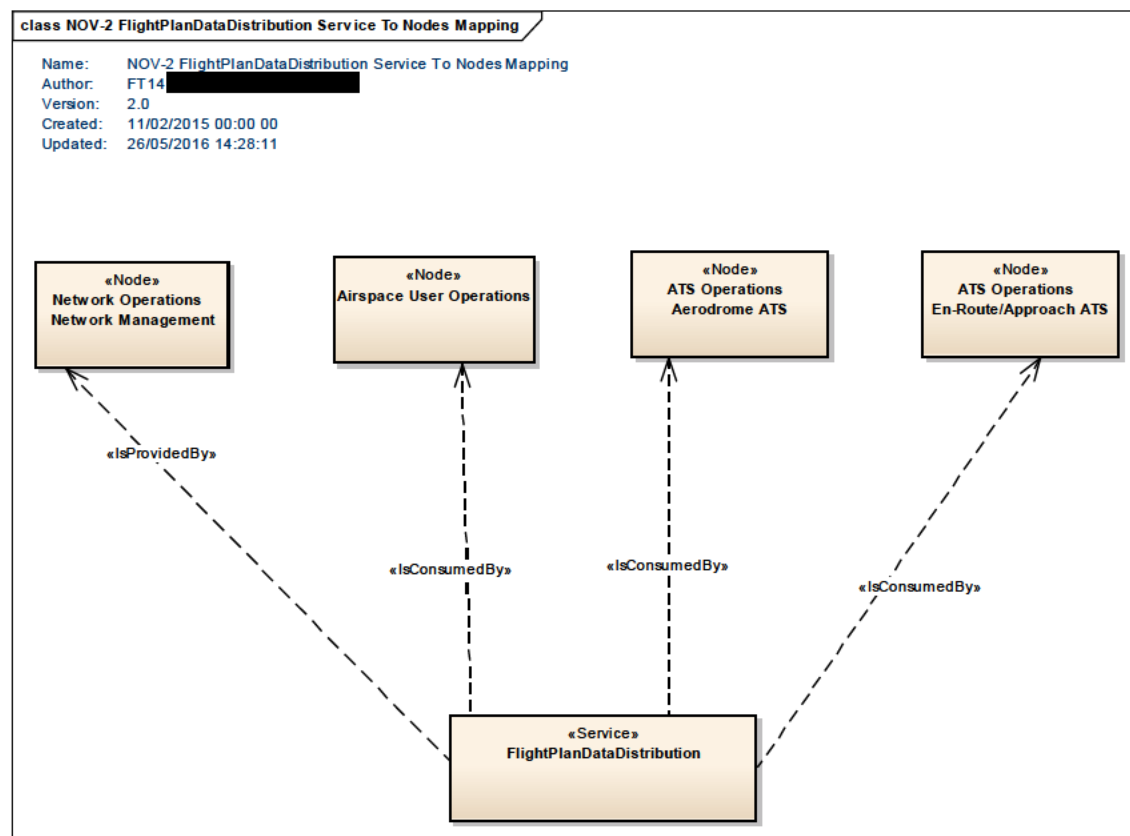


Figure 3: NOV-2 FlightPlanDataDistribution Service to Nodes Mapping diagram

4 Service overview

The FlightPlanDataDistribution service is used to support the following interactions between the service provider (Network Manager) and the service consumers (ATC units, AU):

- The service provider is able to support requests for subscription / unsubscription from the service consumers
- The service provider is able to publish EFPL/ECHG/EDLA/CNL messages for the subscribed service consumers (ATC units);
- The authorized service consumer is able to request a copy of a specific flight plan (in Extended or ICAO format) and receive the requested information.

4.1 Service Taxonomy

The service taxonomy is described in the ISRM Service Portfolio document [19].

4.2 Service Levels (NfRs)

Non Functional Requirements are described in section 3.2.1.

4.3 Service Functions and Capabilities

The mapping from Service to EATMA Operational Activities for the FlightPlanDataDistribution Service is shown in the NSOV-4 Service to Operational Activity diagram, which is reported in Figure 4. The mapping from Service to EATMA Capabilities for the FlightPlanDataDistribution Service is shown in Figure 5.

NSOV-4 NSOV-4 FlightPlanDataDistribution Service to Operational Activities Mapping

Name: NSOV-4 FlightPlanDataDistribution Service to Operational Activities Mapping
 Author: FT14 [REDACTED]
 Version: 2.0
 Created: 11/02/2015 00:00:00
 Updated: 19/05/2016 00:00:00

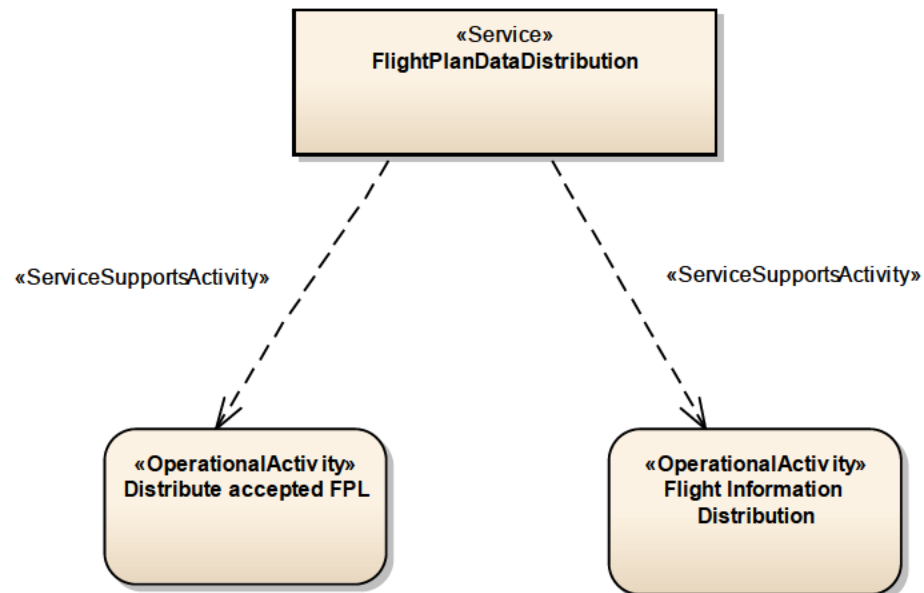


Figure 4: NSOV-4 FlightPlanDataDistribution Service to Operational Activities Mapping diagram¹

¹ This diagram has been updated to take into account the latest EATMA Operational Activities.

4.4 Service Interfaces

The FlightPlanDataDistribution Service has two service interfaces (ports):

- **FlightPlanPublisherInterface;**
- **FlightPlanProviderInterface.**

The Service interface specifications are reported in Chapter 5 and are thus not detailed here. The NSOV-2 ExtendedFlightPlanSubmission Service Interface Definition diagram is in Figure 5.

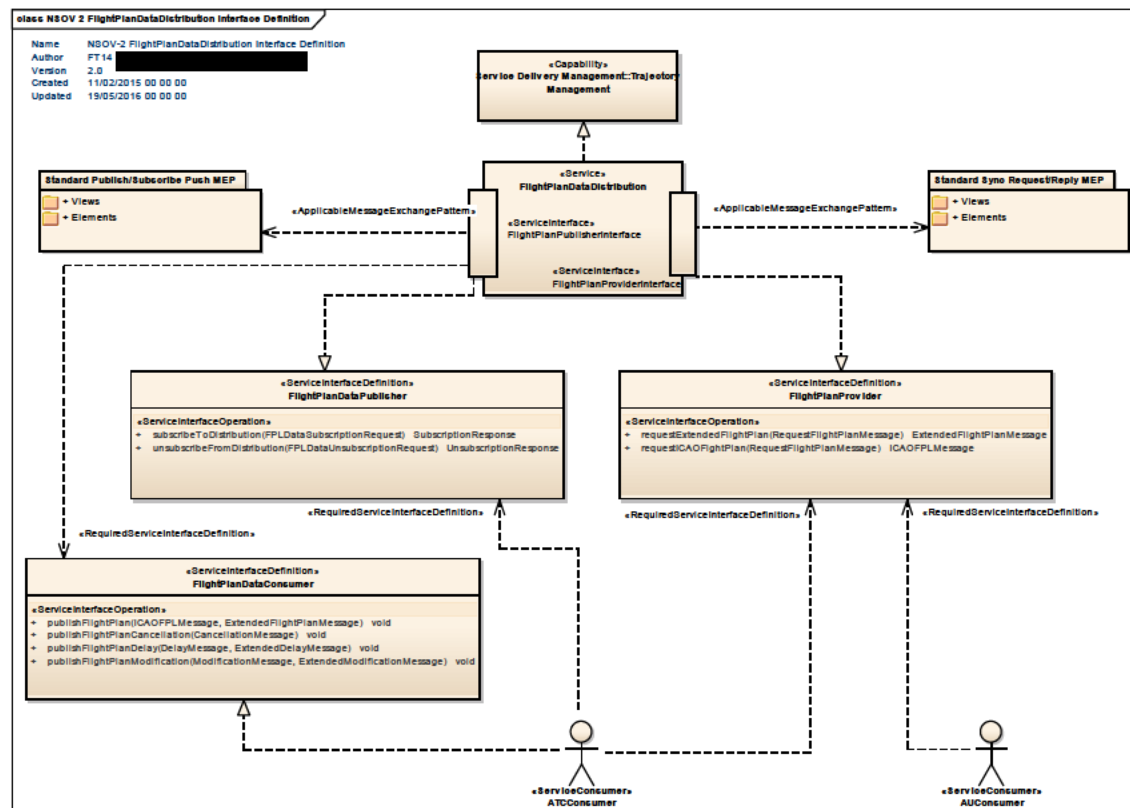


Figure 5: NSOV-2 FlightPlanDataDistribution Interface Definition diagram

The related service interface definitions are listed in Table 2 which is reported below.

ServiceInterface	ServiceInterfaceDefinition	ServiceInterfaceOperation	Role
FlightPlanPublisherInterface	FlightPlanDataPublisher	subscribeToDistribution	provided
FlightPlanPublisherInterface	FlightPlanDataPublisher	unsubscribeFromDistribution	provided
FlightPlanPublisherInterface	FlightPlanDataConsumer	publishFlightPlan	required
FlightPlanPublisherInterface	FlightPlanDataConsumer	publishFlightPlanCancellation	required
FlightPlanPublisherInterface	FlightPlanDataConsumer	publishFlightPlanDelay	required



FlightPlanPublisherInterface	FlightPlanDataConsumer	publishFlightPlanModification	required
FlightPlanProviderInterface	FlightPlanProvider	requestExtendedFlightPlan	provided
FlightPlanProviderInterface	FlightPlanProvider	requestICAOfFlightPlan	provided

Table 2: Service Interfaces

5 Service interface specifications

The FlightPlanDataDistribution Service has two service interfaces (ports):

- **FlightPlanPublisherInterface**;
- **FlightPlanProviderInterface**.

The interfaces of the FlightPlanDataDistribution service are shown in Figure 5 and are hereby described, including their service interface definitions and operations.

5.1 Service Interface FlightPlanPublisherInterface

The purpose of the Service Interface **FlightPlanPublisherInterface** is to foresee the service interface definitions with necessary operations to allow the service consumers to subscribe / unsubscribe to the Service and to receive updated flight plan information from the service provider.

The Service Interface **FlightPlanPublisherInterface** implements two Service Interface definitions:

- the **FlightPlanDataPublisher** service interface definition.
- the **FlightPlanDataConsumer** service interface definition.

The message exchange pattern foreseen for the **FlightPlanPublisherInterface** interface is the Standard Publish/Subscribe Push MEP.

Such service interface definitions are described in the following subparagraphs.

5.1.1 Service Interface Definition FlightPlanDataPublisher

The purpose of the **FlightPlanDataPublisher** service interface definition is to implement those service operations enabling the service consumers to subscribe / unsubscribe to the Service. The architecture of the **FlightPlanDataPublisher** interface definition includes the following operations:

- **subscribeToDistribution**
- **unsubscribeFromDistribution**

These operations are described in the next paragraphs, including their related payload diagrams and tables which have been defined in the release of ISRM (1.4) upon discussion within WP8.

5.1.1.1 Operation subscribeToDistribution

The operation **subscribeToDistribution** provides the service consumer with the functionality to subscribe to the FlightPlanDataDistribution service in order to receive flight plans (in ICAO or Extended Flight Plan format) and their related update messages.

5.1.1.1.1 Operation Functionality

The operation *functionality* foresees:

- to pass the subscription request to the service
- to obtain the subscription response from the service.

5.1.1.1.2 Operation Parameters

The input parameter of the operation is **FPLDataSubscriptionRequest** (which represents the request to subscribe to the service and contains the timestamp of the request).

The return type in output is the **SubscriptionResponse**² (which is the response sent by the service provider to the request from the service consumer, and contains the timestamp of the response).

² The management of the subscription failure is done at the level of the technical interface. ISRM stands at a higher (logical) abstraction level, therefore it does not specify further the outcome of the subscription.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIMR (Ref. [21]) class where/if applicable.

PAYLOAD DIAGRAMS:

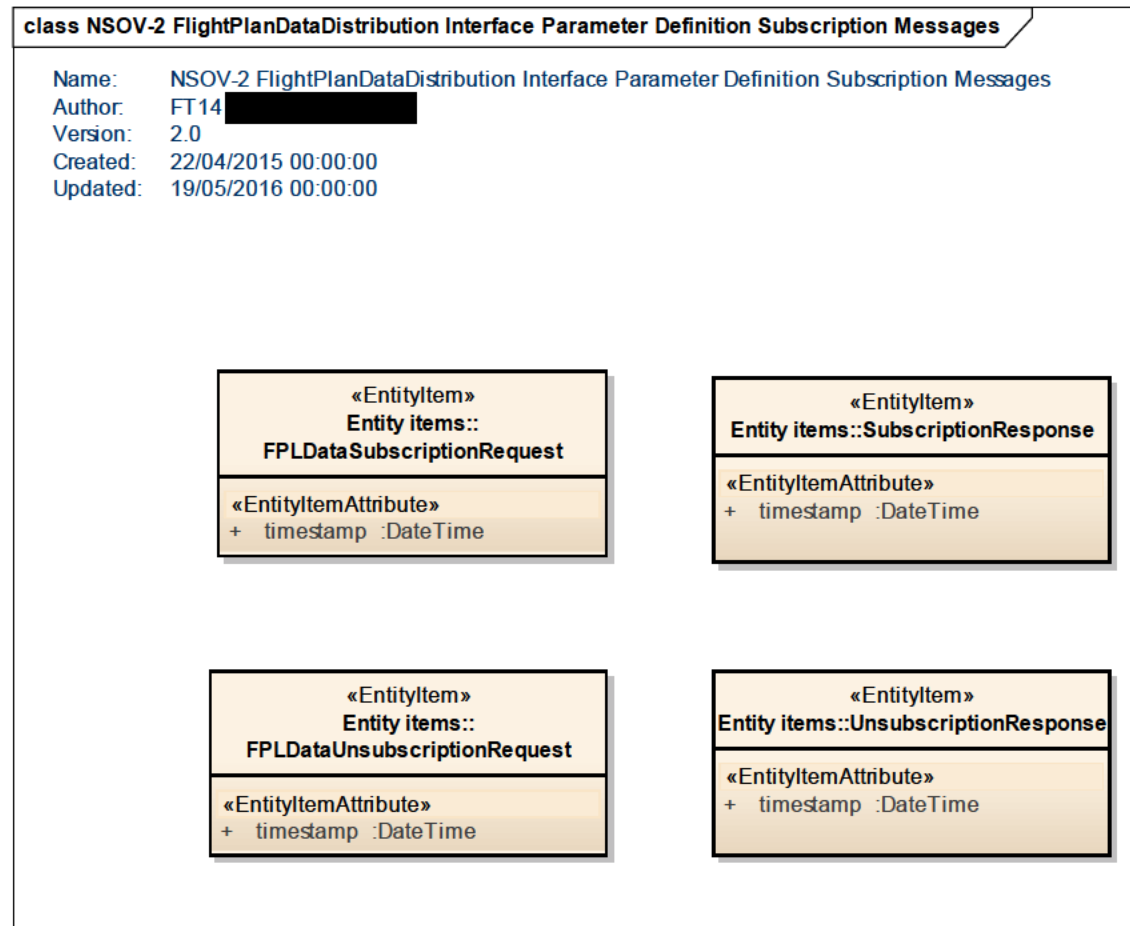


Figure 6: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram – Subscription Messages

PAYLOAD TABLES:

Element Name	Author	Notes
FPLDataSubscriptionRequest		Entity Item containing filtering conditions applied to ATM operational data. It allow the subscription to distribution of flight plan related to the area of responsibility of one specific ATC unit.
Attribute Name	Type	Notes
timestamp	DateTime	The date and time of the subscription request
Tagged Value Name	Value	
CLDMSemanticTrace	CLDM_out of scope	
Element Name	Author	Notes
SubscriptionResponse		The set of information provided back by the publisher in return for a subscription.
Attribute Name	Type	Notes



Element Name		Author	Notes
SubscriptionResponse			The set of information provided back by the publisher in return for a subscription.
Attribute Name	Type	Notes	
timestamp	DateTime	The date and time when the Subscription Response is effective from	
Tagged Value Name		Value	
CLDMSemanticTrace		CLDM_out of scope	

Table 3: Payload tracing to AIRM

5.1.1.2 Operation unsubscribeFromDistribution

The operation **unsubscribeFromDistribution** provides the service consumer with the functionality to unsubscribe to the FlightPlanDataDistribution service in order to not receive anymore flight plans and their related update messages.

5.1.1.2.1 Operation Functionality

The operation *functionality* foresees:

- to pass the unsubscription request to the service
- to obtain the unsubscription response from the service.

5.1.1.2.2 Operation Parameters

The input parameter of the operation is **FPLDataUnsubscriptionRequest**. (which represents the request to unsubscribe to the service and contains the timestamp of the request).

The return type in output is **UnsubscriptionResponse** (which is the response sent by the service provider to the request from the service consumer, and contains the timestamp of the response).

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS: Please see Figure 6

Note: the diagram with the relevant payload is already available in Figure 6 and is thus not reported here.

PAYLOAD TABLES:

Element Name		Author	Notes
FPLDataUnsubscriptionRequest			Entity Item containing filtering conditions applied to ATM operational data. It allow the unsubscription from distribution of flight plan related to the area of responsibility of one specific ATC unit.
Attribute Name	Type	Notes	
timestamp	DateTime	The date and time of the Unsubscription request	
Tagged Value Name		Value	
CLDMSemanticTrace		CLDM_out of scope	

Element Name		Author	Notes
UnsubscriptionResponse			The set of information provided back by the publisher in return for an unsubscription.
Attribute Name	Type	Notes	
timestamp	DateTime	The date and time from when the Unsubscription is effective.	



	Tagged Value Name	Value
	CLDMSemanticTrace	CLDM out of scope

Table 4: Payload tracing to AIRM

5.1.2 Service Interface Definition FlightPlanDataConsumer

The purpose of the **FlightPlanDataConsumer** service interface definition is to implement those service operations enabling the service consumers receive up-to-date flight plan information from the service provider (such as new flight plans, modified flight plans, delayed flight plans and cancelled flight plans).

The architecture of the **FlightPlanDataConsumer** interface definition includes the following operations:

- **publishFlightPlan**
- **publishFlightPlanModification**
- **publishFlightPlanDelay**
- **publishFlightPlanCancellation**

These operations are described in the next paragraphs, including their related payload diagrams and tables which have been defined in the release of ISRM (1.4) upon discussion within WP8.

5.1.2.1 Operation publishFlightPlan

The service operation *publishFlightPlan* enables the subscribed service consumer to receive the flight plans already processed and distributed by the service provider.

5.1.2.1.1 Operation Functionality

The operation *functionality* foresees:

- to pass Extended Flight plan or ICAO flight plan to the service consumer;
- not to obtain a return type (i.e.: no reply from the service consumer)

Note: the operation has been explicitly modelled without a return type.

5.1.2.1.2 Operation Parameters

The input parameters of the operation are ExtendedFlightPlanMessage or ICAOFPLMessage

The output parameter is not foreseen.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS:

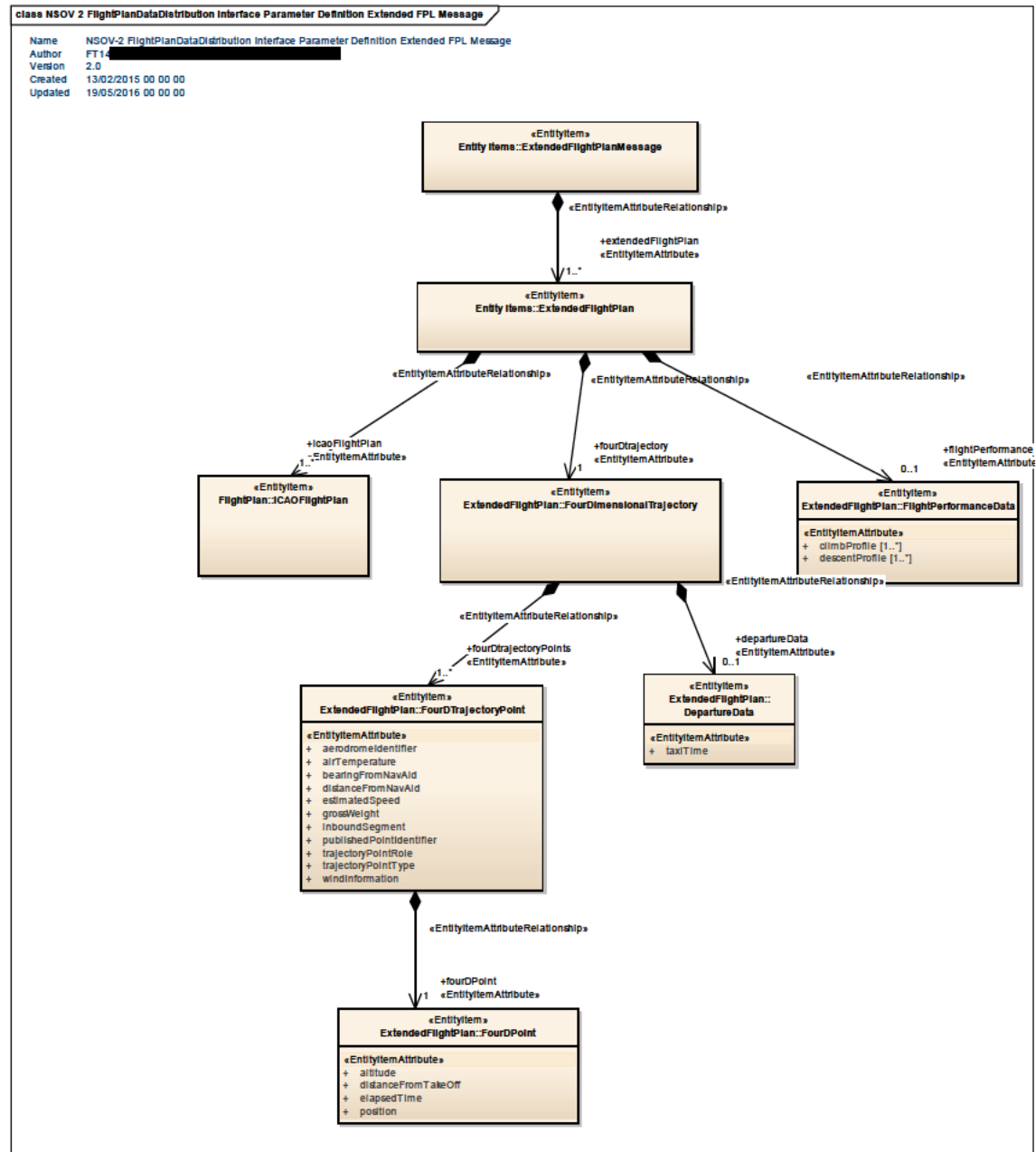


Figure 7: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ExtendedFlightPlanMessage

		htInformationProduct:ExtendedFlightPlan		
Element Name		Author	Notes	
ICAOFlightPlan			all data to be provided in a filed flight plan as specified in the ICAO Doc 4444, including the Field 15 route information.	
	Element Tagged Value Name			Value
	CLDMSemanticTrace			CLDM_out_of_scope
	IMDefinitionTrace		urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:AirTrafficOperations:InformationServicesProducts:FlightInformationProduct:FlightPlan	
Attribute Name		Type	Notes	
	ifplId		Unique identifier assigned by the NM system to a submitted flight plan.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
	IMDefinitionTrace		urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightIdentifier:IFPLIdentifier	
Attribute Name		Type	Notes	
	flightType		Type of flight.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@type	
Attribute Name		Type	Notes	
	numberOfAircraft		Number of the aircraft in the flight, if more than one.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@numberOfAircraft	
Attribute Name		Type	Notes	
	flightRules		Category of flight rules with which the pilot intends to comply.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:Trajectory@flightRules	
Attribute Name		Type	Notes	
	surveillanceEquipment		Surveillance equipment of the aircraft of the flight.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCapability@surveillanceCapability	
Attribute Name		Type	Notes	
	stayInformation		Information concerning the type of activity (training, photographic mission, etc) to be performed during the stay periods mentioned in the route of the flight.	
	Tagged Value Name		Value	
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@flightPhase	

Attribute Name	Type	Notes
estimatedOffBlockTime		Estimated Off-Block date/time.
Tagged Value Name	Value	
CLDMContextTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Common:CodeLists:CodePlanningStatusType@ESTIMATED	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OffBlock@time	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedOffBlockTime	
Attribute Name	Type	Notes
wakeTurbulenceCategory		Wake turbulence category.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCategory@wakeTurbulenceCategory	
Attribute Name	Type	Notes
whatIfRerouteReference		Indication of AO What-If rerouting reference in a flight plan.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:WhatIfFlight	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:WhatIfFlight	
Attribute Name	Type	Notes
takeOffAlternateAerodrome		Alternate landing aerodrome for the TakeOff phase
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO	
Attribute Name	Type	Notes
icaoRoute		Flight route represented by the combination of cruising speed, cruising level and route description.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TrajectorySegment	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:Trajectory:FlightPlannedRoute	
Attribute Name	Type	Notes
enrouteAlternateAerodrome		Aerodromes where the aircraft may land in case of emergency along the route.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO	
IMDefinitionTrace	urn x-	

		ses:sesarju:airm:v410:InformationModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome
Attribute Name	Type	Notes
equipmentCapabilityAndStatus		It represents the capability and status of the equipment of the aircraft of the flight.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftEquipment	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Aircraft:AircraftEquipment	

Element Name	Author	Notes
FourDimensionalTrajectory		AO calculated flight trajectory taking into account constraints and meteorological information for its calculation.

Element Name	Author	Notes
FourDTrajectoryPoint		This is a specialisation of FourDPoint.
Attribute Name	Type	Notes
aerodromeIdentifier		ICAO designator of the airport representing the first or last trajectory point, when trajectoryPointType is adep or ades. It is null in case the first or last trajectory points are not an aerodrome.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome:Aerodrome@locationIndicatorICAO	
Attribute Name	Type	Notes
airTemperature		The forecast static air temperature used to calculate the 4D Trajectory at the location and the corresponding estimated level included in the 4D Trajectory. It is only required when Speed is given as TAS.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Meteorology:AviationMeteorology:AviationCondition@airTemperature	
Attribute Name	Type	Notes
bearingFromNavAid		Compulsory when trajectoryPointType is refPoint, is null in the other cases. It is the bearing from a navaid (identified by the publishedPointIdentifier) used to define a reference point (Cf.: ICAO doc 4444)
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:PointReference@facilityAngle	
Attribute Name	Type	Notes
distanceFromNavAid		Compulsory when trajectoryPointType is refPoint, is null in the other cases. It is the distance from a navaid (identified by the publishedPointIdentifier) used to define a

			reference point (Cf.: ICAO doc 4444)
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v4101:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:PointReference@facilityDistance	
	Attribute Name	Type	Notes
	estimatedSpeed		Estimated speed of the aircraft at the location expressed as Mach number or True Air Speed (TAS)
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:TrajectoryPoint@airspeed	
	Attribute Name	Type	Notes
	grossWeight		Gross weight of the aircraft at a location included in the 4D Trajectory, starting with the aerodrome of departure (ADEP). The gross weight at the ADEP is the Take-Off Weight (TOW).
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:TrajectoryPoint@mass	
	Attribute Name	Type	Notes
	inboundSegment		The route segment that ends at the 4DTrajectoryPoint. Is null for the first trajectoryPoint, is compulsory for all other 4DTrajectoryPoint.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TrajectoryPoint@inboundSegment	
	Attribute Name	Type	Notes
	publishedPointIdentifier		Published coded designator of the trajectory point. Is compulsory when trajectoryPointType is publishedPoint or refPoint is null in the other cases.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:DesignatedPoint@designator	
	Attribute Name	Type	Notes
	trajectoryPointRole		Indicate the role of the point in the trajectory, e.g.: bottomOfClimb, VFRTtoIFR. A point can have multiple roles (e.g.: a publishedPoint can be the bottom of a climb and the point where the rules change from VFR To IFR) When trajectoryPointType is otherPoint the trajectoryPointRole cannot be GATToOAT, IFRToVFR, OATToGAT, VFRTtoIFR One of the following location items:

			• Aerodrome of departure/destination. Eg: EGKK • Points traversed by the 4D Trajectory including but not limited to the following: 1. Points where a change of ATS route, requested cruising level or speed, flight rules (IFR/VFR) or flight type (GAT/OAT) occur; 2. Points that mark the beginning and end of a portion of flight outside a designated route (direct segments); 3. Points that mark the beginning and end of a portion of flight where the direction and the vertical and horizontal speed of the flight are constant (vector points). Such points may be used to describe the climb and descent phases of the flight using intermediate points in order to provide a more accurate description of the 4D trajectory along these sections of the trajectory that are not linear. 4. Points that describe the ATS route segments planned to be flown; 5. Top of Climb (TOC) points for every transition from a climb phase to a cruise phase; 6. Top of Descent (TOD) points for every transition from a cruise phase to a descent phase; 7. Bottom of Climb (BOC) points for every transition from a cruise phase to a climb phase; 8. Bottom of Descent (BOD) points for every a transition from a descent phase to a cruise phase; 9. Points where the 4D Trajectory intersects the boundary of FIR/UIRs in whose airspace the flight is planned to fly.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:TrajectorySignificantPoint@types	
	Attribute Name	Type	Notes
	trajectoryPointType		Indicate the type of point (e.g.: ADEP, geoPoint, refPoint) In case of refPoint, the Position inherited from FourDPoint is the geographical position of the trajectory point resulting from the calculation based on a NavAid, distance and bearing.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspacePoint:TrajectorySignificantPoint@types	

Attribute Name	Type	Notes
windInformation		The forecast direction and speed of the wind used to calculate the 4D trajectory at the location and the corresponding estimated level included in the 4D trajectory.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Meteorology:Wind	

Element Name	Author	Notes
FlightPerformanceData		Climbing and descending capabilities of the aircraft specific to the flight, taking into account the performance of the airframe that is used to operate the flight as well as any other parameters that may influence it such as engine settings and status, cost factor applied by the operator. The <u>climb and descent performance profiles</u> are optimum and unconstrained climb and descent profiles instantiated per flight that satisfy the following conditions: 1. Are calculated without taking into account constraints regarding the vertical evolution of the flight such as route availability, RAD level restrictions, SID/STAR restrictions; 2. Are calculated without applying meteorological conditions (wind and temperature); 3. Are provided up to the maximum cruising level acceptable for the flight (even if not included in the flight plan). This would allow the recipient systems to generate accurate trajectories for vertical re-routings above the highest requested cruising level included in the filed flight plan. Performance profiles should be provided at least up to the highest requested cruising level given in the FPL; Do not contain step-climbs and step-descents i.e. if the aircraft is planned to do an initial climb to F350, then burn fuel during an hour of cruise, and then climb to F370, these two consecutive climbs shall be glued together.
Attribute Name	Type	Notes



	climbProfile		The climb performance profile described as a sequence of points in which every point is defined by: 1. Cumulative Distance from the aerodrome of departure 2. Level: Altitude above mean sea level (MSL) in feet (ft) or meters (m) or Flight level (FL). 3. Cumulative Time elapsed from the aerodrome of departure
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:FlightPerformance@climbProfile	
	Attribute Name	Type	Notes
	descentProfile		The descent performance profile described as a sequence of points, in reverse order starting from the aerodrome of destination, in which every point is defined by: 1. Cumulative Distance from the aerodrome of destination 2. Level: Altitude above mean sea level (MSL) in feet (ft) or meters (m) or Flight level (FL). 3. Cumulative Time elapsed from the aerodrome of destination
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:FlightPerformance@descentProfile	

Element Name	Author	Notes
DepartureData		Departure data item.
Attribute Name	Type	Notes
taxiTime		Estimated taxi time from the parking position to take-off. This data is not attached to a specific point/location of the 4D trajectory.
	Tagged Value Name	Value
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TaxiData@taxiTime

Table 5: Payload tracing to AIRM

Input parameter "ICAOFlightPlan"

Element Name	Author	Notes
ICAOFPMessage		ICAO flight plan message
	Element Tagged Value Name	Value
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:AirTrafficOperations:InformationServicesProducts:FlightInformationProduct:FlightPlan
Element Name	Author	Notes
ICAOFlightPlan		all data to be provided in a filed flight plan as specified in the ICAO Doc 4444, including



		the Field 15 route information.	
	Element Tagged Value Name	Value	
	CLDMSemanticTrace	CLDM_out_of_scope	
	IMDefinitionTrace	urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields: AirTrafficOperations:InformationServicesProducts:FlightInformationProduct:FlightPlan	
	Attribute Name	Type	Notes
	ifplId		Unique identifier assigned by the NM system to a submitted flight plan.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
	IMDefinitionTrace	urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightIdentifier:IFPLIdentifier	
	Attribute Name	Type	Notes
	flightType		Type of flight.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@type	
	Attribute Name	Type	Notes
	numberOfAircraft		Number of the aircraft in the flight, if more than one.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@numberOfAircraft	
	Attribute Name	Type	Notes
	flightRules		Category of flight rules with which the pilot intends to comply.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:Trajectory@flightRules	
	Attribute Name	Type	Notes
	surveillanceEquipment		Surveillance equipment of the aircraft of the flight.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCapability@surveillanceCapability	
	Attribute Name	Type	Notes
	stayInformation		Information concerning the type of activity (training, photographic mission, etc) to be performed during the stay periods mentioned in the route of the flight.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@flightPhase	
	Attribute Name	Type	Notes
	estimatedOffBlockTime		Estimated Off-Block date/time.
	Tagged Value Name	Value	
	CLDMContextTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Subject	

		ctFields:Common:CodeLists:CodePlanningStatusType@ESTIMATED	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OffBlock@time	
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedOffBlockTime	
	Attribute Name	Type	Notes
	wakeTurbulenceCategory		Wake turbulence category.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCategory@wakeTurbulenceCategory	
	Attribute Name	Type	Notes
	whatIfRerouteReference		Indication of AO What-If rerouting reference in a flight plan.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:WhatIfFlight	
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:WhatIfFlight	
	Attribute Name	Type	Notes
	takeOffAlternateAerodrome		Alternate landing aerodrome for the TakeOff phase
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO	
	Attribute Name	Type	Notes
	icaoRoute		Flight route represented by the combination of cruising speed, cruising level and route description.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TrajectorySegment	
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:Trajectory:FlightPlannedRoute	
	Attribute Name	Type	Notes
	enrouteAlternateAerodrome		Aerodromes where the aircraft may land in case of emergency along the route.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO	
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome	
	Attribute Name	Type	Notes
	equipmentCapabilityAndStatus		It represents the capability and status of the equipment of the aircraft of the flight.

	Tagged Value Name	Value
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftEquipment
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Aircraft:AircraftEquipment

Element Name		Author	Notes
AircraftType			Type of aircraft.
	Element Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftType
	Attribute Name	Type	Notes
	icaoId		
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftType@icaoIdentifier
	Attribute Name	Type	Notes
	otherDesignation		TYP/ field 18 subfield
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftType@operationalName

Element Name		Author	Notes
EstimatedElapsedTimeAtLocation			Association of a location and an elapsed time.
	Attribute Name	Type	Notes
	elapsedTime		The elapsed time.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TrajectorySegment@estimatedElapsedTime	
	Attribute Name	Type	Notes
	FIR		A FIR.
	Tagged Value Name	Value	
	CLDMContextTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Codelists:CodeAirspaceType@FIR	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:Airspace:Airspace@designator	
	IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:AirspaceInfrastructure:Airspace:FlightInformationRegion	
	Attribute Name	Type	Notes
	point		A point.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:TrajectoryPoint@referencePoint	



Element Name		Author	Notes
EnrouteDelay			Specify the point on the route where a delay is planned to occur together with the duration of the delay.
	Element Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:EnRouteDelay
	Attribute Name	Type	Notes
	delay		
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:EnRouteDelay@delay
	Attribute Name	Type	Notes
	point		
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Trajectory:EnRouteDelay@enRouteDelayPoint

Element Name		Author	Notes
AirFiledData			Estimate data provided when the flight plan was filed airborne.
	Element Tagged Value Name		Value
	CLDMSemanticTrace		CLDM_out_of_scope
	Attribute Name	Type	Notes
	atsUnitId		ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained. [IFPS User Manual]
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Stakeholders:Stakeholder:Unit@designator
	Attribute Name	Type	Notes
	startingPoint		Starting point.
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirspaceInfrastructure:AirspaceInfrastructurePoint:SignificantPoint
	Attribute Name	Type	Notes
	estimatedTimeOver		(ETO/ATO) Estimated or Actual Time Over the first point indicated in the route. The EOBT field in the context of a flight plan with source AFIL is not the EOBT but the ETO/ATO at the first point given in the route. [IFPS User Manual]
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OverPoint@time

	IMDefinitionTrace	urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedTimeOver
Attribute Name	Type	Notes
clearedLevel		Level at which the aircraft has been cleared to join controlled airspace over the given point.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:ATMServiceDeliveryManagement:ATCClearance@clearedFlightLevel	
IMDefinitionTrace	urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields:AirTrafficOperations:ATMServiceDeliveryManagement:ClearedRoute	

Element Name	Author	Notes
SupplementaryInformation		This field consists of such supplementary information as is available, organized into a string of elements separated by spaces. Refer to ICAO4444 field type 19 (Supplementary information)
Element Tagged Value Name	Value	
CLDMSemanticTrace	CLDM_out_of_scope	
Attribute Name	Type	Notes
aircraft colour		The colour of the aircraft.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftColourAndMarking@aircraftColour	
Attribute Name	Type	Notes
frequency_availability		Availability of frequencies for the aircraft. Three different values can be specified.
Tagged Value Name	Value	
CLDMContextTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Codelists:CodeCommunicationCapabilityType@VHF_RTTF	
CLDMContextTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Codelists:CodeCommunicationCapabilityType@UHF_RTTF	
CLDMContextTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:Codelists:CodeAircraftEquipmentType@EMERGENCY_LOCATOR_TRANSMITTER	
CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCapability@communicationCapability	
Attribute Name	Type	Notes
fuel_endurance		Fuel endurance.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@fuelEndurance	

Attribute Name	Type	Notes
life_jackets_equipment		Specifies the equipment of the life jackets carried. Four different values can be specified.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:CodeLists:CodeLifeJacketEquipmentType
Attribute Name	Type	Notes
number_of_persons		The total number of persons on board, when so prescribed by the appropriate ATS authority.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:TakeOffConfiguration@numberOfPersons
Attribute Name	Type	Notes
other_remarks	CharacterString	Any other useful remarks.
Tagged Value Name		Value
CLDMSemanticTrace		CLDM out of scope
Attribute Name	Type	Notes
other_survival_equipment		Indicates any other survival equipment carried.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@survivalEquipmentType
Attribute Name	Type	Notes
pilot_name		The name of the pilot-in-command.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@pilot
Attribute Name	Type	Notes
significant_markings		Significant markings for the aircraft.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftColourAndMarking@significantMarkings
Attribute Name	Type	Notes
survival_equipment		Specifies the survival equipment carried. Four different values can be specified.
Tagged Value Name		Value
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@survivalEquipmentType

Element Name	Author	Notes
Dinghies	08.03.04 disaac	Details about the dinghies carried by the aircraft. At least one of the attributes has to be specified.
Element Tagged Value Name		Value
CLDMSemanticTrace		urn x-



		ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment
Attribute Name	Type	Notes
are covered		Specifies if dinghies are covered.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@isCovered	
Attribute Name	Type	Notes
colour		The colour of the dinghies.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@colour	
Attribute Name	Type	Notes
number		The number of dinghies carried.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@number	
Attribute Name	Type	Notes
total_capacity		The total capacity, in persons carried, of all dinghies.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:SurvivalEquipment@dinghyTotalCapacity	

Element Name	Author	Notes
CommonFlightPlanData		CommonFlightPlanData dataType contains the common fields of the flight plan messages and update messages
Element Tagged Value Name	Value	
CLDMSemanticTrace	CLDM_out_of_scope	
Attribute Name	Type	Notes
estimatedOffBlockTime		Estimated Off-Block Time
Tagged Value Name	Value	
CLDMContextTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Common:CodeLists:CodePlanningStatusType@ESTIMATED	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OffBlock@time	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedOffBlockTime	
Attribute Name	Type	Notes
totalEstimatedElapsedTime		For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome. Source: ICAO

			(2005), Annex 2, Rules of the Air
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@totalEstimatedElapsedTime	
	IMDefinitionTrace	urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:Trajectory:TrajectoryPoint	

Element Name		Author	Notes
ArcID			Aircraft Identification.
			May be the registration marking of the aircraft, or the ICAO designator of the aircraft operator followed by the flight identifier.
	Element Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightIdentifier:AircraftIdentification	
	Attribute Name	Type	Notes
	Identifier		Aircraft identifier.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@aircraftIdentification	

Element Name		Author	Notes
SSRInfo		08.03.10	This class represents SSR code and mode in IRDs.
	Attribute Name	Type	Notes
	code		The code range is: (octal)0000 .. (octal)7777.
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightIdentifier:SSRCode@code
	Attribute Name	Type	Notes
	mode		Mode indicates the surveillance system used for the SSR code: mode A, mode S, mode C.
	Tagged Value Name		Value
	CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightIdentifier:SSRCode@mode

Element Name		Author	Notes
Aerodrome			A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
	Element Tagged Value Name		Value
	CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome
	Attribute Name	Type	Notes
	locationIndicatorICAO		The four letter ICAO location indicator of the



		aerodrome/heliport, as listed in ICAO DOC 7910.
Tagged Value Name		Value
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@designator

Element Name		Author	Notes
OtherAerodromeDesignation			Used to specify the name and location of an aerodrome for which no ICAO identification exist or the first or last point of the route when departing from or arriving to a place that is not an aerodrome.
Attribute Name		Type	Notes
aerodromeLocation			The location of the aerodrome expressed as a reference point or a geographical position. Optional.
Tagged Value Name		Value	
CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@aerodromeReferencePoint	
IMDefinitionTrace		urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:AerodromeReferencePoint	
Attribute Name		Type	Notes
aerodromeName			The name of the aerodrome. 1 { LIM_CHAR } 50
Tagged Value Name		Value	
CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@name	

Element Name		Author	Notes
MessageNumber			This entity shall contain the following attributes, where the ICAOFlightPlanPart entity is subject to update, in detail a sequence of letters identifying the sending ATS unit and the receiving ATS unit, followed by the serial number of this message. [Doc 4444 flight plan field type 3: message number and reference data] In particular: - sending ATS - receiving ATS - serial number of the message
Element Tagged Value Name		Value	
CLDMSemanticTrace		CLDM_out_of_scope	
Attribute Name		Type	Notes
receivingATS		CharacterString	
Tagged Value Name		Value	
CLDMSemanticTrace		CLDM_out_of_scope	



Attribute Name	Type	Notes
sendingATS	CharacterString	
Tagged Value Name	Value	
CLDMSemanticTrace	CLDM out of scope	
Attribute Name	Type	Notes
serialNumber	Integer	
Tagged Value Name	Value	
CLDMSemanticTrace	CLDM_out of scope	

Element Name	Author	Notes
OtherInformation		Any other flight data Items specified in the bilateral agreement. Refer to ICAO 4444 field type 18 (Other information)
Attribute Name	Type	Notes
aircraft_performance_data		Aircraft performance data, indicated by a single letter as specified in the <i>Procedures for Air Navigation Services — Aircraft Operations</i> (PANS-OPS, Doc 8168), <i>Volume I — Flight Procedures</i> , if so prescribed by the appropriate ATS authority.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:Codelists:CodeAircraftLandingCategoryType	
Attribute Name	Type	Notes
alternate_destination_aerodromes		Not for PH1 Complete name of alternative destination aerodromes, if ZZZZ is used as alternative destination aerodromes.
Tagged Value Name	Value	
CLDMContextTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@firstAlternateDestinationAerodrome	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@designator	
Attribute Name	Type	Notes
code		Not for PH1 Aircraft address (expressed in the form of an alphanumeric code of six hexadecimal characters) when required by the appropriate ATS authority.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:Aircraft@icaoAircraftAddress	
Attribute Name	Type	Notes
communication_equipment		Information about radiocommunication, navigation and approach aid equipment and information about surveillance equipment.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Communication:Communication@equipment	

		ctFields:Flight:FlightCapability@communicationCapability	
Attribute Name	Type	Notes	
datalink_capabilities		Not for PH1 Up to four different datalink capabilities.	
Tagged Value Name		Value	
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftCapability@datalinkCommunicationCapability	
Attribute Name	Type	Notes	
departure_aerodrome		Not for PH1 Complete name of departure aerodrome, if ZZZZ is used as departure aerodrome or the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained if departure aerodrome is not filled.	
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@designator	
Attribute Name	Type	Notes	
destination_aerodrome		Not for PH1 Complete name of destination aerodrome, if ZZZZ is used as 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@designator	
Attribute Name	Type	Notes	
otherSurveillanceEquipment		SUR/ from Field18 of ICAO2012	
Tagged Value Name		Value	
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:AircraftAvionics@type	
IMDefinitionTrace		urn x- ses:sesarju:airm:v410:InformationModel:SubjectFields:Aircraft:AircraftAvionics	
Attribute Name	Type	Notes	
enroute_alternate_aerodromes		Not for PH1 Complete name of en-route alternate aerodrome/s.	
Tagged Value Name		Value	
CLDMContextTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@enRouteAlternateAerodrome	
CLDMSemanticTrace		urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@designator	

			ome@designator
	Attribute Name	Type	Notes
	name_of_operator		Not for PH1 Name of the operator, if not obvious from the aircraft identification.
	Tagged Value Name	Value	
	CLDMContextTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@operator	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Stakeholders:Stakeholder:AircraftOperator@designatorICAO	
	Attribute Name	Type	Notes
	navigation_equipment		Not for PH1 Significant navigation equipment
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:CodeLists:CodeNavigationCapabilityType	
	Attribute Name	Type	Notes
	replacementFlightPlanIndicator	CharacterString	
	Tagged Value Name	Value	
	CLDMSemanticTrace	CLDM_out of scope	
	Attribute Name	Type	Notes
	other_remarks	CharacterString	In PH1 the string coming in the Field 18 will be copied in this attribute Any other plain language remarks when required by the appropriate ATS authority or deemed necessary by the pilot-in-command for the provision of air traffic services.
	Tagged Value Name	Value	
	CLDMSemanticTrace	CLDM_out of scope	
	Attribute Name	Type	Notes
	rvrQualification		Operating minima when special meteorological conditions exist. If specified, must be within [0, 999].
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Stakeholders:Stakeholder:FlightCrewApplicationAndApproval@runwayVisualRangeMinima	
	Attribute Name	Type	Notes
	reason_for_special_handling		Not for PH1 Reason for special handling by ATS.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x- ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@reasonForSpecialHandling	
	Attribute Name	Type	Notes
	reclearance_in_flight		Not for PH1 The route details to the revised destination aerodrome. The revised route is subject to reclearance in flight.
	Tagged Value Name	Value	
	CLDMContextTrace	urn x-	

		ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AirspaceUserOperations:ReclearanceInFlight	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:ATMServiceDeliveryManagement:ATCClearance	
	Attribute Name	Type	Notes
	selcal_code		Not for PH1 OCL {length = 4} Selcal (Selective Calling) code made up of a four letter code. Included if so prescribed by the appropriate ATS authority.
	Tagged Value Name	Value	
	CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Aircraft:Aircraft@selectiveCallingCode	

Table 6: Payload tracing to AIRM

Output Parameters: NOT FORESEEN.

5.1.2.2 Operation publishFlightPlanModification

The service operation *publishFlightPlanModification* provides the service consumer with the functionality to receive updates of flight plans processed by the service provider.

5.1.2.2.1 Operation Functionality

The operation *functionality* foresees:

- to pass the ExtendedModificationMessage or the ModificationMessage to the service consumer;
- not to obtain a return type (i.e.: no reply from the service consumer)

Note: the operation has been explicitly modelled without a return type.

Clarifications:

- The ExtendedModificationMessage is used for updates related to Extended Flight plans (ECHG).
- The ModificationMessage is used for updates related to ICAO flight plans (CHG).

5.1.2.2.2 Operation Parameters

The input parameters of the operation are **ExtendedModificationMessage** or **ModificationMessage**

The output parameter is not foreseen.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

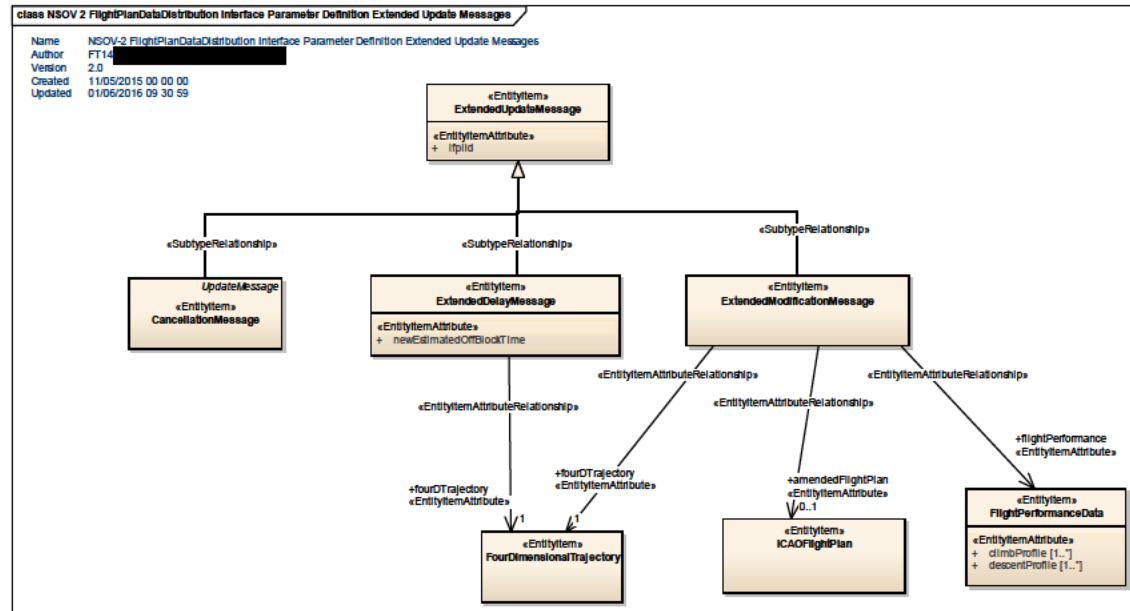
PAYLOAD DIAGRAMS:

Figure 9: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ExtendedUpdateMessages

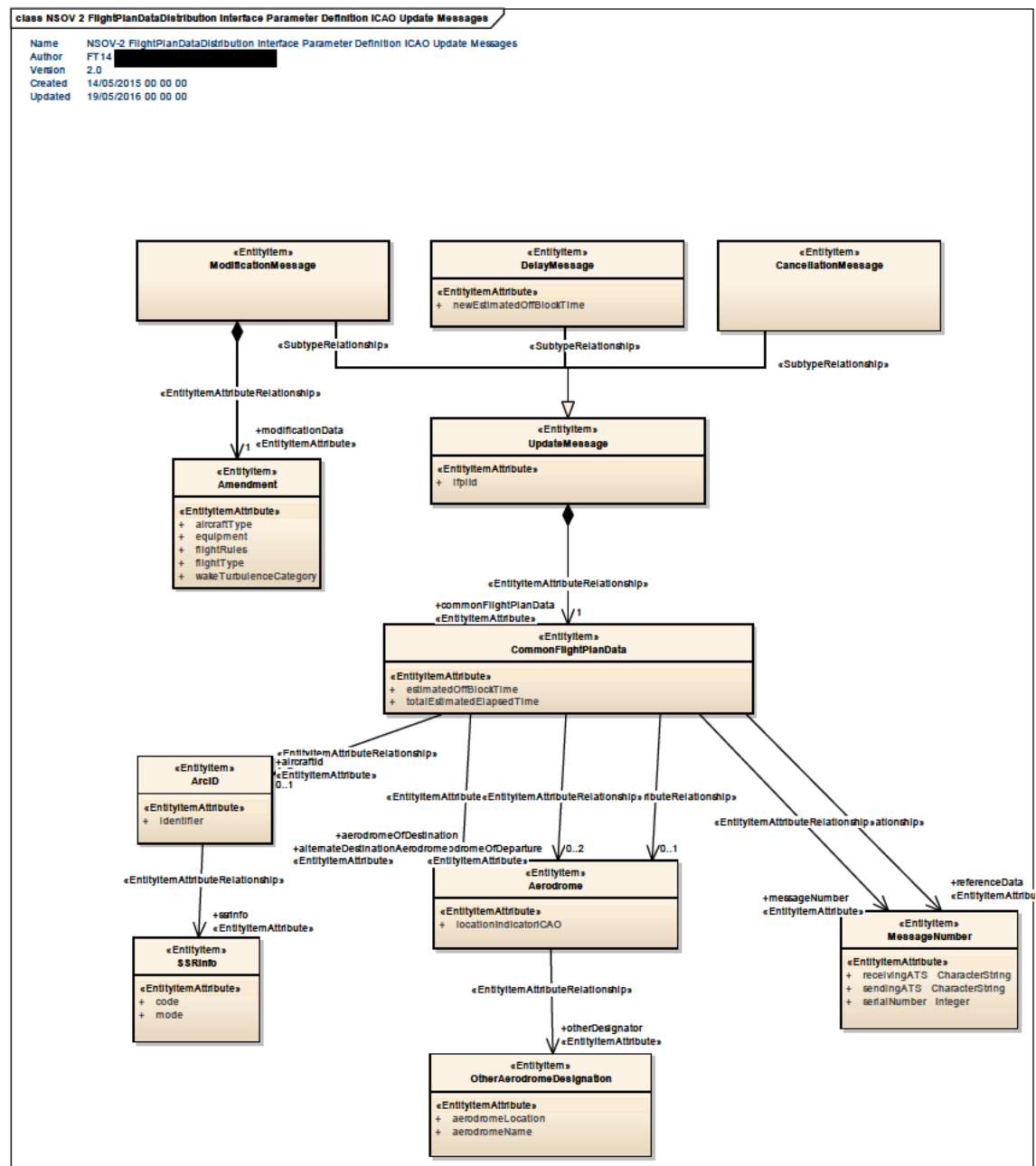


Figure 10: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - ICAOUpdateMessages

PAYLOAD TABLES:

Input parameter: ExtendedModificationMessage

Element Name	Author	Notes
ExtendedUpdateMessage		ExtendedUpdateMessage is the super class of ExtendedModificationMessage, ExtendedDelayMessage and CancellationMessage.
Element Tagged Value Name	Value	



encoding		
Attribute Name	Type	Notes
ifplid		Flight plan association data to allow the association of the message to the original flight plan. The association data will depend on the message format. For example, in case of an exchange of flight plan data with IFPS using a web based technology (such as the existing NM B2B services), the association data would be the unique flight plan identification code allocated by IFPS to the flight upon reception of the original Extended Flight Plan message.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:ifplIdentifier	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightIdentifier:IFPLIdentifier	

Element Name	Author	Notes
ExtendedModificationMessage		An extended modification message shall contain, as a minimum: • Flight plan association data to allow the association of the message to the original flight plan. The association data will depend on the message format and protocol used for the data exchange. For example, in case of an exchange of flight plan data with IFPS using a web based technology (such as the existing NM B2B services), the association data would be the unique flight plan identification code allocated by IFPS to the flight upon reception of the original Extended Flight Plan message. • The data elements that are modified. In case they are modified, the 4D Trajectory and/or Flight Performance Data, as defined in 4.1.2.1, shall be included as well. In case, the Flight Performance Data is modified then the corresponding updated 4D Trajectory shall be included. The 4D Trajectory may be modified without the Flight Performance Data being modified as well. Note: an extended modification message may optionally repeat all data elements included in the original extended flight plan message even if they are not updated. This will depend on the data format and protocol used for the exchange of data.
Element Tagged Value Name	Value	
encoding		

Table 7: Payload tracing to AIRM



Note: all the other relevant entity items for the ExtendedUpdateMessage are reported in Table 6 and are thus not reported here.

Input parameter: ModificationMessage

Element Name	Author	Notes
UpdateMessage		Parent class (abstract) of modification, delay and cancellation message.
Attribute Name	Type	Notes
ifplId		The unique identifier of a flight plan in the IFPS system
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightIdentifier:IFPLIdentifier	

Element Name	Author	Notes
ModificationMessage		All modification messages (CHG) submitted to the NM for processing shall contain an opening bracket, the message title, aircraft identification, departure aerodrome and estimated off-block time, arrival aerodrome, a correctly formatted Item 18, Item 22 containing the content of the change and a close bracket.
Element Tagged Value Name	Value	
encoding		

Table 8: Payload tracing to AIRM

Note: all the other relevant entity items for the ICAOUpdateMessage are reported in Table 6 and are thus not reported here.

Output Parameters: NOT FORESEEN.

5.1.2.3 Operation publishFlightPlanDelay

The service operation *publishFlightPlanDelay* provides the service consumer with the functionality to receive updates of flight plans subject to a delay processed by the service provider.

Note: the delay of a flight plan is a particular case of update of a flight plan.

5.1.2.3.1 Operation Functionality

The operation *functionality* foresees:

- to pass the ExtendedDelayMessage or the DelayMessage to the service consumer
- not to obtain a return type (i.e.: no reply from the service consumer)

Note: the operation has been explicitly modelled without a return type.

5.1.2.3.2 Operation Parameters



The operation *publishFlightPlanDelay* has a two input parameters

1. *DelayMessage*
2. *ExtendedDelayMessage*

The *DelayMessage* is used for a delay of the related to ICAO flight plans (DLA).

The *ExtendedDelayMessage* is used for a delay of the related Extended Flight plans (EDLA).

The operation has been modelled without a return type.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS:

Please refer to Figure 9 and Figure 10.

PAYLOAD TABLES:

Input Parameters: *ExtendedDelayMessage*, *DelayMessage*

Element Name	Author	Notes
ExtendedDelayMessage		An extended delay message shall contain, as a minimum: - Flight plan association data to allow the association of the message to the original flight plan. The association data will depend on the message format. For example, in case of an exchange of flight plan data with IFPS using a web based technology (such as the existing NM B2B services), the association data would be the unique flight plan identification code allocated by IFPS to the flight upon reception of the original Extended Flight Plan message. - The new estimated off-block time - The new estimated off-block date, in case it is modified - The updated 4D Trajectory, in case it is modified due to the delay
Element Tagged Value Name		Value
encoding		
Attribute Name	Type	Notes
newEstimatedOffBlockTime		New estimated off-block time and date.
Tagged Value Name		Value
CLDMContextTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Common:CodeLists:CodePlanningStatusType@ESTIMATED
CLDMSemanticTrace		urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OffBlock@time
IMDefinitionTrace		urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedOffBlockTime

Element Name		Author	Notes
DelayMessage			A DelayMessage message is transmitted when the departure of an aircraft is delayed
Attribute Name	Type	Notes	
newEstimatedOffBlockTime		New estimated off-block time and date.	
Tagged Value Name		Value	
CLDMContextTrace		urn x-ses:sesarju:airm:v400:ConsolidatedLogicalDataModel:SubjectFields:Common:Codelists:CodePlanningStatusType@ESTIMATED	
CLDMSemanticTrace		urn x-ses:sesarju:airm:v400:ConsolidatedLogicalDataModel:SubjectFields:Flight:FlightEvent:OffBlock@time	
IMDefinitionTrace		urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightEvent:EstimatedOffBlockTime	

Table 9: Payload tracing to AIRM

Output Parameters: NOT FORESEEN.

5.1.2.4 Operation publishFlightPlanCancellation

The service operation publishFlightPlanCancellation allows the service provider to send to the subscribed service consumers the cancellation message (CNL) for both Extended Flight Plans or ICAO flight plans processed by the service provider.

Note: the cancellation of a flight plan is a particular case of update of a flight plan.

5.1.2.4.1 Operation Functionality

The operation *functionality* foresees:

- to pass the CancellationMessage to the service consumer;
- not to obtain a return type (i.e.: no reply from the service consumer)

Note: the operation has been explicitly modelled without a return type.

5.1.2.4.2 Operation Parameters

The input parameter of the operation is the *CancellationMessage* (CNL).

The output parameter is not foreseen.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS:

For the payload diagrams please refer to Figure 10.

PAYLOAD TABLES:

Element Name	Author	Notes
CancellationMessage		Message for the cancellation of a flight plan (CNL)
Element Tagged Value		Value



	Name	
	encoding	

Table 10: Payload tracing to AIRM

Output Parameters: NOT FORESEEN.

5.2 Service Interface FlightPlanProviderInterface

The purpose of the Service Interface **FlightPlanProviderInterface** is to foresee the service interface definition with necessary operations to allow the service consumers to request a copy of a specific **ExtendedFlightPlan** or **ICAOFlightPlan**.

The message exchange pattern foreseen for the service interface **FlightPlanProviderInterface** is the Standard Synchronous Request/Reply MEP.

The Service Interface **FlightPlanProviderInterface** implements one Service Interface definition:

- the **FlightPlanProvider** service interface definition.

The service interface definition is described in the following subparagraphs.

5.2.1 Service Interface Definition FlightPlanProvider

The purpose of the **FlightPlanProvider** service interface definition is to implement those service operations enabling the authorized service consumers to receive, on their request, an up-to-date copy of a certain flight in **Extended** or **ICAO** format.

The architecture of the **FlightPlanProvider** interface definition includes the following operations:

- **requestExtendedFlightPlan**;
- **requestICAOFlightPlan**.

These operations are described in the next paragraphs, including their related payload diagrams and tables which have been defined in the release of ISRM (1.4) upon discussion within WP8.

5.2.1.1 Operation requestExtendedFlightPlan

The service operation *requestExtendedFlightPlan* provides the service consumer with the functionality to request a copy of a specific flight plan in “Extended format”, processed by the service provider.

5.2.1.1.1 Operation Functionality

The operation *functionality* foresees:

- to pass the request for a flight plan in Extended format to the service provider;
- to obtain as return type the **ExtendedFlightPlanMessage** for the requested flight plan.

5.2.1.1.2 Operation Parameters

The input parameter for the operation is the **RequestFlightPlanMessage**.

The return type as output parameter for the operation is the **ExtendedFlightPlanMessage**.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS

Input parameter:



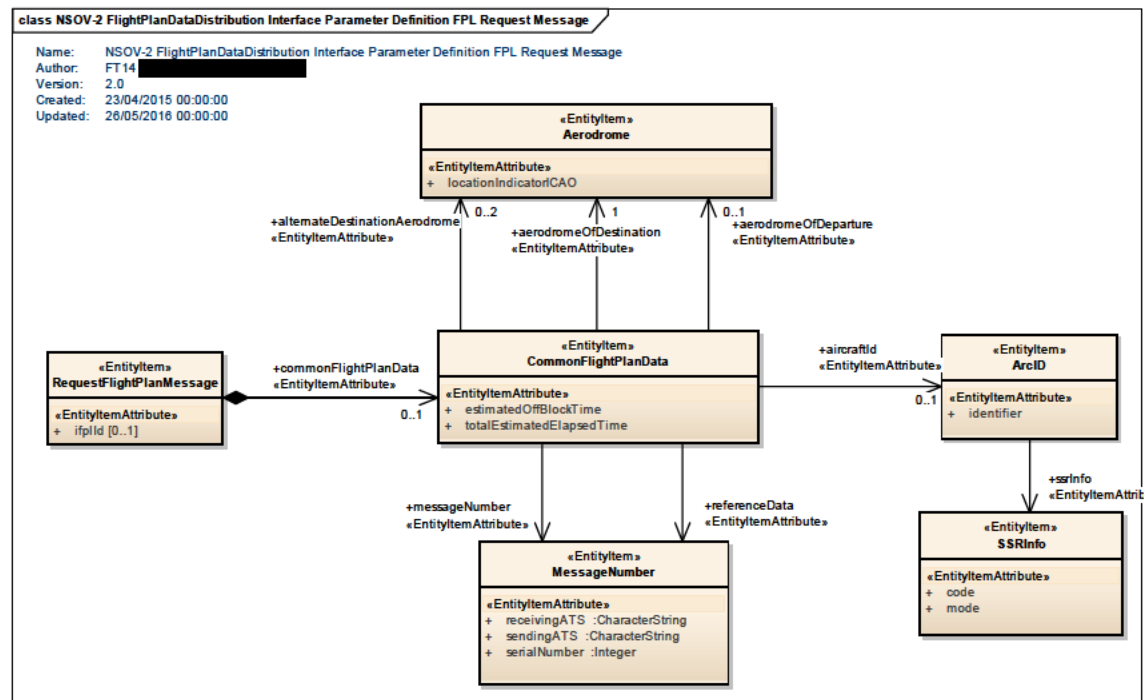


Figure 11: NSOV-2 FlightPlanDataDistribution Interface Parameter Definition diagram - RequestFlightPlanMessage

Output parameter:

ExtendedFlightPlanMessage: see Figure 7

PAYLOAD TABLES

Input parameter:

Element Name	Author	Notes
RequestFlightPlanMessage		Message used to request a flight plan to the Network Manager.
Element Tagged Value Name	Value	
CLDMSemanticTrace	CLDM out_of_scope	
Attribute Name	Type	Notes
ifplId		Unique identifier assigned by the NM system to a submitted flight plan.
Tagged Value Name	Value	
CLDMSemanticTrace	urn x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:Flight:Flight@ifplIdentifier	
IMDefinitionTrace	urn x-ses:sesarju:airm:v410:InformationModel:SubjectFields:Flight:FlightIdentifier:IFPLIdentifier	

Table 11: Payload tracing to AIRM

Output parameter:

ExtendedFlightPlanMessage: see Table 5

5.2.1.2 Operation requestICAOFlightPlan

The service operation *requestICAOFlightPlan* provides the service consumer with the functionality to request a copy of a specific flight plan in "ICAO format", processed by the service provider.

5.2.1.2.1 Operation Functionality

The operation *functionality* foresees:

- to pass the request for a flight plan in ICAO format to the service provider;
- to obtain as return type the ICAOFlightPlanMessage for the requested flight plan.

5.2.1.2.2 Operation Parameters

The input parameter for the operation is *RequestFlightPlanMessage*.

The return type from the operation is *ICAOFlightPlanMessage*.

The payload diagrams and related tables are reported hereby, where each attribute and relationship is described. The tagged values show the linked AIRM class where/if applicable.

PAYLOAD DIAGRAMS

The diagram for the input parameter (RequestFlightPlanMessage) is available in Figure 11 and is thus not reported here.



The diagram for the output parameter (ICAOFPLMessage) is available in Figure 8 and is thus not reported here.

PAYLOAD TABLES

Input parameter:

The table for the input parameter (RequestFlightPlanMessage) is available in Table 11 and is thus not reported here.

Output parameter:

The table for the output parameter (ICAOFPLMessage) is available in Table 6 and is thus not reported here.

6 Service dynamic behaviour

The FlightPlanDataDistribution Service implements the following Service Interfaces (with their respective interface definitions):

- FlightPlanPublisherInterface
 - o FlightPlanDataPublisher
 - o FlightPlanDataConsumer
- FlightPlanProviderInterface
 - o FlightPlanProvider

The dynamic behaviour of such service interface is described in the following paragraphs of the present chapter.

6.1 Service Interface FlightPlanPublisherInterface

The dynamic behaviour of **FlightPlanPublisherInterface** is described in Figure 12.

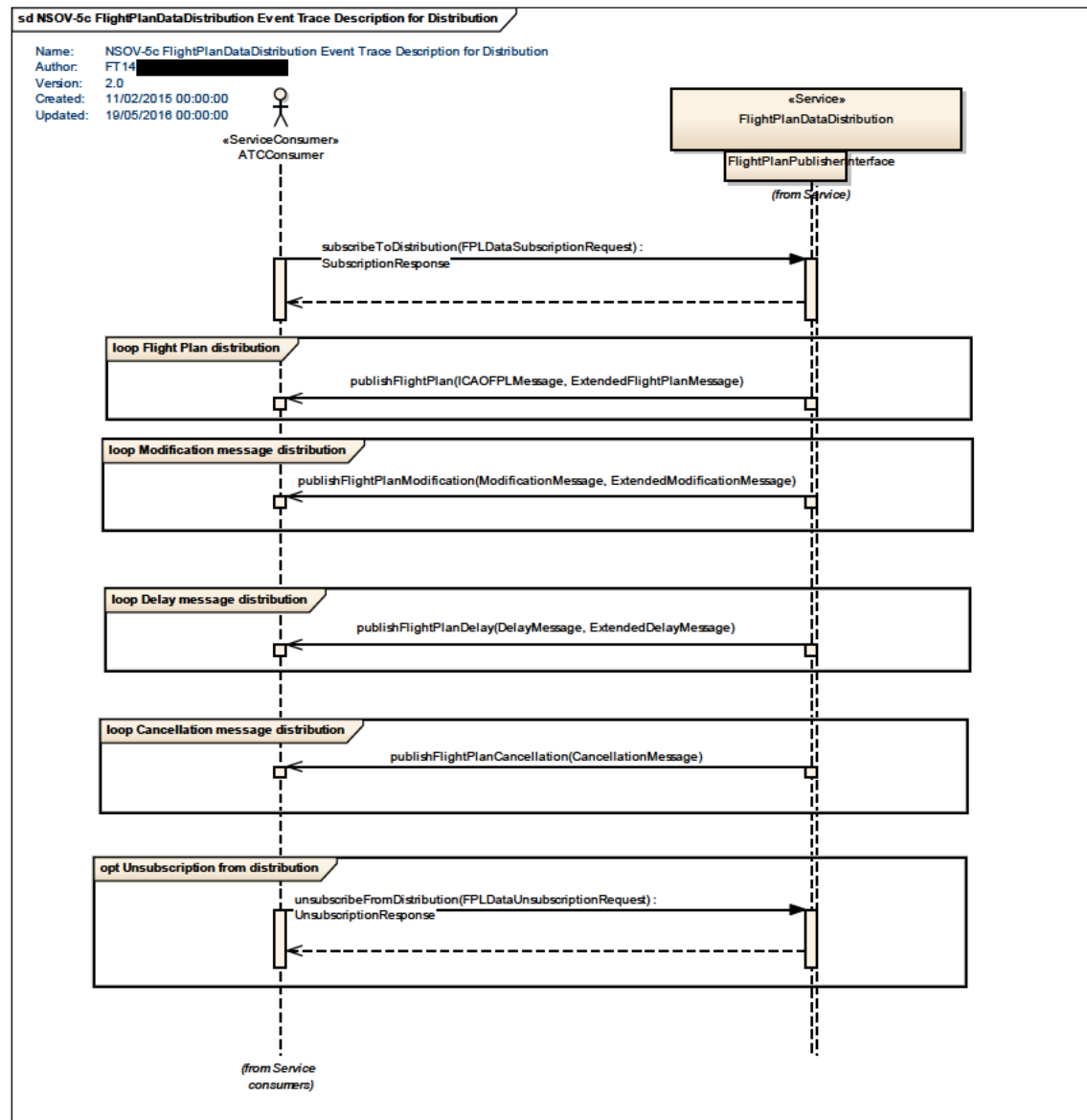


Figure 12: NSOV-5c FlightPlanDataDistribution Event Trace Description for the FlightPlanPublisherInterface

6.2 Service Interface FlightPlanProviderInterface

The dynamic behaviour of **FlightPlanProviderInterface** is described in Figure 13.

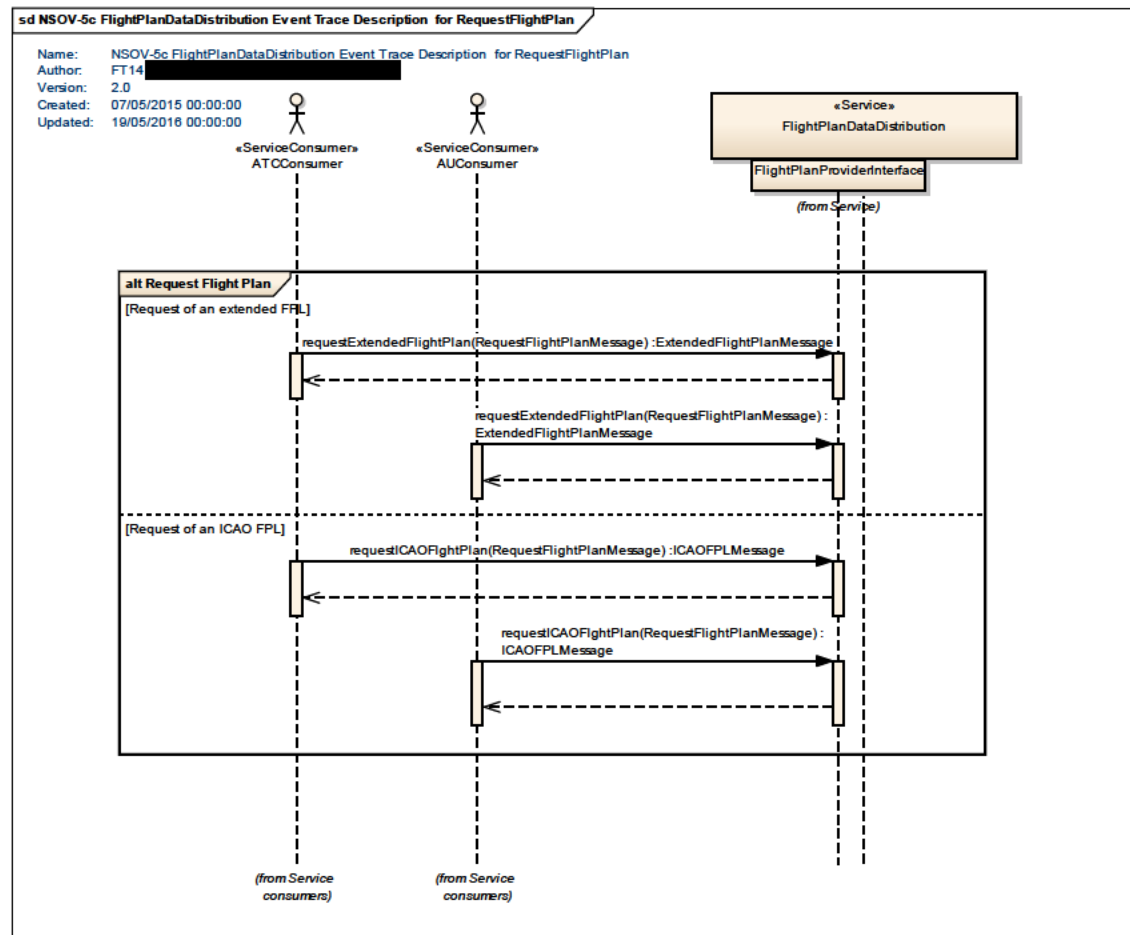


Figure 13: NSOV-5c FlightPlanDataDistribution Event Trace Description for the FlightPlanProviderInterface

7 Service provisioning (optional)

NA

8 Validation and Verification

8.1 Verification

The verification of the service model is compliant to ISRM Foundation Rulebook (Ref. [6]).

Verification was performed using the WP 8.3.10 verification tools integrated on Sparx Enterprise Architect framework:

- Autoverify script version 28927 (Tortoise SVN review 28927).
- MDG Technologies ISRM Verification Rules version 29993 (Tortoise SVN review 29325)
- MDG Technologies ISRM Library Functions version 29915 (Tortoise SVN review 29325)

8.1.1 Verification Results

Verification was performed via manual inspection and assisted by a script developed in 08.03.10.

The verification outcome is completely free of errors.

The detailed findings, coming from execution of the verification script, are recorded in Verification_report_FlightPlanDataDistribution_Service file, located in the D65 delivery package.

Verification reports are in the following files:

Designed_Services_-_FlightPlanDataDistributionService.xls

Designed_Services_-_FlightPlanDataDistributionService_Common.xls

A summary of those results is reported below:

Service name:	Designed Services - FlighPlanDataDistribution	Date of Service Creation:	20140212-09:37:57
Service version:	2.0	Version of Verification Rules:	00.07.00
Phase:	2.0	Date of Verification:	20160601-04:21:53
Owner of service:		Passes:	200
Name of verifier:		Failures:	
Overall comments:	NA	Manual:	59
MDG Library Functions version:	29915	MDG ISRM Verification version:	29993

8.2 Validation

Currently there are no validation exercises covering the exchange of information for the FlightPlanDataDistribution Service.

Since the reference information exchange model applicable to the payload of the ExtendedFlightPlanSubmission service (See reference [17]) is FIXM (v3.0.1) with its EFPL extension (v1.0 beta) released by Eurocontrol, it is recommended to extend the usage of FIXM also to the FlightPlanDataDistribution service as future activity.

9 References

Name	Version	Document ID / Location
[1] Project deliverables template	03.00.00	SJU templates & guidelines package, Project deliverables template
[2] SESAR Operational Service and Environment Definition	03.00.00	SJU templates & guidelines package, OSED template
[3] SESAR Safety and Performance Requirements	03.00.00	SJU templates & guidelines package, SPR template
[4] ISRM Tooling Guidelines	00.07.00	08.03.10 D44
[5] ISRM Modelling Guidelines	00.07.00	08.03.10 D44
[6] ISRM Foundation Rulebook	00.07.00	08.03.10 D44
[7] ISRM Verification Guidelines	00.07.00	08.03.10 D44
[8] European ATM Architecture (EATMA) Guidance Material v4	00.04.02	B.04.01 D66
[9] Step 1 Business trajectory OSED 2015 update	00.04.00	07 06 02 D45
[10] Deliverable D22-003 to ISRM v1.0	00.00.04	08.03.05 D22-003
[11] European ATM Service Identification for Extended Flight Plan Services	00.01.00	08.03.05 D22-002
[12] B4.3 EFPL Service Allocation FT14	00.00.04	B.4.3
[13] TM Perfo Initial System Requirements V1.0	01.00.01	13.02.01 D10
[14] TM Perfo Final System Requirements V1.0	00.01.01	13.02.01 D145
[15] ICAO Doc 4444 ATM/501 PANS – Air Traffic Management	Fifteenth Edition – 2007 Amendment 2	http://code7700.com/pdfs/icao_doc_4444_15th_edition.pdf
[16] IFPS Users Manual	19.0.1 Edition – - March 2015	https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/HANDBOOK/ifps-users-manual-current.pdf
[17] European ATM Service Description for the ExtendedFlightPlanSubmission service	00.03.01	08.03.10 D65
[18] European ATM Service Description for the FlightPlanDataDistribution	00.02.01	08.03.10 D64



Name	Version	Document ID / Location
service		
[19] ISRM Service Portfolio	00.08.01	08.03.10 D65
[20] Interim Step 1 SPR for Business Trajectory Management	00.02.00	07.06.02 D87
[21] ATM Information Reference Model	4.1.0	08.01.03 D47
[22] Verification reports for the service	N/A	08.03.10 D65 Verification reports

-END OF DOCUMENT-

