SWIM Compliance Report for R4 V&V exercise EXE-13.02.02-VP-462

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Abstract

This report is evidence that the **Validation Exercise EXE-13.02.02-VP462** has services that have been assessed for SWIM Compliance. It provides the SWIM Compliance Level for each of the services assessed in the Validation Exercise.

NOTE: This document is not an official project Deliverable, but it can be used as an Annex to such Deliverables.

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Rational for rejection
None.

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This deliverable consists of SJU foreground.

Table of Contents

Executive Summary

This report is evidence that the **Validation Exercise EXE-13.02.02-VP-462** has services that have been assessed for SWIM Compliance. It provides the SWIM Compliance Level for each of the services assessed in the Validation Exercise.

1 Introduction

1.1 Purpose of the Document

This report is part of the SWIM Compliance Framework, produced in the context of SWIM Compliance for the R4 Validation Exercises that want to demonstrate the SWIM Compliance level. The SWIM Compliance Criteria for R4 explain the criteria against we assess for SWIM Compliance. This template provides the evidence to satisfy the Compliance Criteria. The steps in completing the template report are the following:

1. The person responsible for the Validation Exercise, with assistance from WP 8 and WP 14 experts, produces the SWIM Compliance Report i.e. using this template.
2. The report is then handed over to the SWIM Compliance Assessment Team, who performs the assessment and completes this template report into the final SWIM Compliance Assessment Report, including a **SWIM Compliance Level**.

This report is meant to contain all evidences that show the SWIM compliance of the **service instances of the R4 Validation Exercise EXE-13.02.02-VP-462**.

1.2 Intended Readership

- WP8 / WP 14
- WP 3
- Persons participating in the R4 Validation Exercise (e.g. Owners of the Validation Exercise)
- P13.02.02 members
- SWIM Compliance Assessment Team
- SJU

For the intended readership, the importance of this document resides in the fact that it provides proof that validation exercise EXE-13.02.02-VP-462 has been prepared according to the SWIM Compliance principle outlined by the SWIM Compliance Framework and guidelines set forth by P08.01.01 and collaborators.

1.3 Terminology

Term	Definition
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 performance. **Source: Common working meeting between B41 EA study and B43 T5. In bold, the NATO Architecture Framework V3 definition**
Governance	Ability of decision-makers to set policies regarding stakeholders, services, and their relationships
Information Exchange	A specification of the information that is to be exchanged. An Information Exchange must have a unique identifier. Source: NATO Architecture Framework V3 definition.
Information Exchange Requirement	An Information Exchange Requirement (IER) is the description, in terms of characteristics, of the requirement to transfer information between two or more end users. The characteristics described include source, recipients, content, size, timeliness, security and trigger. IERs are defined as independent of the communications medium. An IER may express both

Term	Definition
	current and future requirements. Note: an information element is the descriptor of the content in the IER. Source: (British) Ministry of Defence, Information Exchange Requirements.
Infrastructure profile	A set of features characterising the enabling infrastructure, including the QoS and security that the infrastructure provides, technical constraints, user behaviour patterns and characteristics. Profiles relate to legacy and/or new infrastructures such as the SWIM technical infrastructure. Source: B43 T5 study
Means of compliance	Means to demonstrate that an 'Object under Assessment' conforms to a rule (such rule being as e.g., a specification, policy, standard or law)
Node	**A logical entity that performs Operational Activities specified independently of any physical implementation,** e.g. a stakeholder type providing and/or consuming operational information within a network of other stakeholders. Source: Common working meeting between B41 EA study and B43 T5. In bold, the NATO Architecture Framework V3 Definition.
Object under Assessment	Item (i.e., specifications, mechanisms, activities, individuals) upon which an assessment method is applied during an assessment. For R4, the Object under Assessment (OuA) is a particular Service Instance.
Operational Focus Area	A limited set of dependent operational and technical improvements related to an Operational Sub-Package, comprising specific interrelated OIs designed to meet specific performance expectations of the ATM Performance Partnership. Source: ATM Lexicon
Policy	Principle or rule with a view to guiding decisions and achieving one or more rational outcomes
Registry	The SWIM registry is a trusted, managed, complete and consolidated source of reference for service information and related regulations (policies, standards, certifications and taxonomies). It holds all SWIM metadata regarding: - stakeholders, - service definitions (ISRM), - service instances, and the links between them. Source: Registry ConOps
Service	The contractual provision of something (a non-physical object), by one party, for the use of one or more other parties. 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. Source: ATM Lexicon
Service definition	The specification of a service as it appears in the Service Description Document and Service Interface Definition. The Service Description Document consists of a mix of textual information and graphics (expressed in a UML notation). The Service Interface Definition consists of machine-

Term	Definition
	interpretable constructs specified according to the selected technical platform, including the necessary technology bindings, e.g. complete WSDL (and XSD), IDL, AMQP, DDS, etc. Source: B4.3 Working Method on Services.
Service interface	The mechanism by which a service communicates. Service providers and consumers need to implement service interfaces in order 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. Source: B43 T5 study.
Service instance	Service which has been implemented in accordance with its specification in the service catalogue (during the SESAR Development Phase, the service definitions are available in the ISRM) by a service provider (by itself or contracted to a third party). Source: SWIM ConOps
Service level	A value specification for one or more service attributes indicating the level to which a technical system (or resource if including non-automated services) delivers a service in a particular environment. Example: A "Service Response time" may be defined in relation to a service. A given technical system could have a corresponding Service Level, e.g. "Less than 3 seconds". Source: B43 T5 study.
Service consumer	Stakeholder which consumes service(s) provided by other stakeholder(s)
Service lifecycle	The lifecycle defines the sequence of phases followed by a service.
Service Payload definition	The data/information exchange model represented in UML contained in the Service Instance Description.
Service provider	Stakeholder which provides service(s) that can be consumed by other stakeholder(s)
SWIM	System-wide information management. SWIM consists of standards, infrastructure and governance enabling the management of ATM information and its exchange between qualified parties via interoperable services. Source: SWIM ConOps.
SWIM Common Component	A SWIM infrastructure element managed by the 'SWIM authority' and implementing a shared capability, e.g. registry, PKI, etc. Source: SWIM ConOps.
SWIM Compliance Assessment Team	The group of experts who perform the SWIM Compliance Assessment and provide the final SWIM Compliance Level.
SWIM Infrastructure	The sum of all the SWIM infrastructure elements which are needed to support SWIM services. Source: B43 T5 study.
SWIM Profile	A SWIM profile is a coherent, appropriately sized grouping of middleware functions/services for a given set of technical constraints/requirements which permit a set of stakeholders to share information

1.4 Acronyms and Abbreviations

Term	Definition

Term	Definition
AIRM	ATM Information Reference Model.
AIXM5.1	Aeronautical Information Exchange Model 5.1
AIFS	Aeronautical Information Feature Service
AIMS	Aeronautical Information Map Service
AINS	Aeronautical Information Notification Service
AMIS	Aerodrome Mapping Information Service
AMXM	Aerodrome Mapping eXchange Model
ADQ	Aeronautical Data Quality
ATM	Air Traffic Management
CLDM	Consolidated Logical Data Model
ConOps	Concept of operations
DDS	Data Distribution Service
DOD	Detailed Operational Description
DNOTAM	Digital NOTAM
EA	Enterprise Architecture
EAEA	European ATM Enterprise Architecture
EASA	European Aviation Safety Agency
EC	European Commission
ePIB	electronic PIB
EU	European Union
ESB	Enterprise Service Bus
EUROCAE	European Organization for Civil Aviation Equipment
IBP	Industry Based Prototype
ICAO	International Civil Aviation Organisation
ICD	Interface Control Document
IER	Information Exchange Requirements
INTEROP	Interoperability Requirements

Term	Definition
IRS	Interface Requirements Specification
ISO	International Organisation for Standardisation
ISRM	Information Services Reference Model
IT	Information Technology
ITIL	IT Infrastructure Library (ITIL® provides a Best Practice guidance framework for IT Service Management)
MEP	Message Exchange Pattern
MET	Meteorology
NAF	NATO Architecture Framework
NOTAM	Notice To Airmen
OFA	Operational Focus Area
OGC	Open Geographical Consortium
OI	Operational Improvement
OPS	Operational
OSED	Operational Service and Environment Definition
OuA	Object under Assessment
PIB	Pre-flight Information Bulletin
PKI	Public Key Infrastructure
QoS	Quality of Service
RPC	Remote Procedure Call
RTCA	Radio Technical Commission for Aeronautics
SACG	SWIM Architect Co-ordination Group
SCG	Service Coordination Group
SCL	SWIM Compliance Level
SDD	Service Description Document, Static and Dynamic Data
SES	Single European Sky
SESAR	Single European Sky ATM Research Programme

Term	Definition
SESAR Programme	The programme which defines the research and development activities and projects for the SJU
SID	Service Identification Document
SIR	Service Identification Report
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SLA	Service Level Agreement
SOA	Service Oriented Approach
SOAP	Simple Object Access Protocol
SoaML	Service Oriented Architecture Modelling Language
SVA	Service Activity
SWIM	System Wide Information Management
SWIM TI	SWIM Technical Infrastructure
SYS	System Projects
TAD	Technical Architecture Description
TS	Technical Specification
UDDI	Universal Description, Discovery and Integration
UML	Unified Modelling Language
URN	Uniform Resource Name
WP	Work Package
WFS	Web Feature Service
WMS	Web Map Service
WSDL	Web Services Description Language
XML	Extensible Mark-up Language
XSD	XML Schema Definition

2 SWIM Compliance Report Summary

This section summarises the main information about the compliance assessment.

Services assessed for SWIM Compliance	Digital NOTAM AIFS / WFS - Provider: Frequentis - Consumer: ePIB , Aeronautical Maps service, Frequentis Aeronautical Feature AIFS / WFS - Provider: Frequentis - Consumer: ePIB prototype, Aeronautical Maps service, Frequentis Aeronautical Maps AIMS / WMS - Provider: Frequentis - Consumer: ePIB prototype, Frequentis Aerodrome Maps AMIS / WFS - Provider: LFV - Consumer: ePIB prototype, Frequentis FNS-NDS / US Digital NOTAM SOAP WFS - Provider: FAA - Consumer: ePIB prototype, Frequentis
Version of the AIRM	AIRM v 3.1.0
Version of the ISRM	ISRM v 1.1
Version of the TI	SWIM Profile v 2.1
Version of SWIM Compliance Framework applied	SWIM Compliance Framework for R4 Validation Exercises
Reason for the Assessment	Demonstrate the SWIM Compliance for services implementations for R4 Validation Exercise EXE-13.02.02-VP-462
Name of the Assessors	AIRM: ISRM: TI: Others
SWIM Compliance Level per service instance and compliance domain	Digital NOTAM AIFS / WFS - AIRM: Compatible - ISRM: Compliant - SWIM TI: Compliant

	Aeronautical Feature AIFS / WFS - AIRM: Compatible - ISRM: Compliant - SWIM TI: Compliant Aeronautical Maps AIMS / WMS - AIRM: Ready - ISRM: Compliant - SWIM TI: Compliant Aerodrome Maps AMIS / WFS - AIRM: Ready - ISRM: Compliant - SWIM TI: Compliant FNS-NDS / US Digital NOTAM SOAP WFS - AIRM: Compatible - ISRM: Ready - SWIM TI: Compliant

3 Details of the Compliance Assessment

This section expands of the summary contained in section 2. It covers the main information about the compliance assessment in the three areas (TI, ISRM, AIRM) and provides additional details where needed. This section has to be filled in by the persons responsible for the Validation Exercise, together with the WP 8 and WP 14 experts. The SWIM Assessment Team will assess the information below and provide the final SWIM Compliance Level.

The detailed criteria are available in the SWIM Compliance Framework for R4 V&V exercises [17].

3.1 Description of the service instances

Service Instance Name	Description
Digital NOTAM AIFS / WFS, Frequentis	The service is an implementation of the ISRM defined AIFS service based on the OGC standard WFS. The service provides aeronautical information, in the form of Digital NOTAM events, in a form compliant to the Digital NOTAM specification V2.0 (draft) by Eurocontrol, FAA & All, which builds upon the AIXM 5.1 specification by same authors. Accepts Request: WFS 2.0.0 GetCapabilities Sends Response: WFS 2.0.0 Capabilities, XML, OGC Filter spec. compliant Accepts Request: WFS 2.0.0, compliant with OGC Filter spec. Sends Response: WFS 2.0.0, Digital NOTAM event list, AIXM5.1
Aeronautical Feature AIFS / WFS, Frequentis	The service is an implementation of the ISRM defined AIFS service based on the OGC standard WFS. The service provides aeronautical information in the form of Features, in a form compliant with the AIXM5.1 specification by Eurocontrol, FAA, & All. Accepts Request: WFS 2.0.0 GetCapabilities Sends Response: WFS 2.0.0 Capabilities, XML, OGC Filter spec. compliant Accepts Request: WFS 2.0.0, compliant with OGC Filter spec. Sends Response: WFS 2.0.0, aeronautical feature list, AIXM5.1

Service Instance Name	Description
Aeronautical Maps AIMS / WMS, Frequentis	The service is an implementation of the ISRM defined AIFS service based on the OGC standard WMS. The service provides aeronautical information in the form of Features and Digital NOTAM, in a form compliant with the AIXM5.1 specification by Eurocontrol, FAA, & All. Accepts Request: WMS 1.0 GetCapabilities Sends Response: WMS 1.0 Capabilities, XML, OGC Filter spec. compliant Accepts Request: WMS 1.0, compliant with OGC Filter spec. Sends Response: maps, binary type, PNG
Aerodrome Maps AMIS / WFS, LVF	The service is an implementation of the ISRM defined AMIS service based on the OGC standard WFS. The service provides aerodrome mapping information in an experimental AMXM format which is slated to be integrated into AIRM in the future. Accepts Request: WFS 2.0.0 GetCapabilities Sends Response: WFS 2.0.0 Capabilities, XML, OGC Filter spec. compliant Accepts Request: WFS 2.0.0, compliant with OGC Filter spec. Sends Response: WFS 2.0.0, aeronautical feature list, AMXM (experimental)

Service Instance Name	Description
FNS-NDS / US Digital NOTAM SOAP WFS, FAA	The service is an FAA proprietary implementation of a Digital NOTAM service. The service provides aeronautical information, in the form of Digital NOTAM events, in a form compliant to the Digital NOTAM specification V2.0 (draft) by Eurocontrol, FAA & All, which builds upon the AIXM 5.1 specification by same authors. While AIRM compliant through the use of AIXM 5.1, the FAA Digital NOTAM service is not modelled to be ISRM compliant, due to the fact that FAA does not use the ISRM model for their needs. SWIM TI compliancy is given, due to the fact that FAA regards SWIM as a standardization goal for all their services. The service is SOAP based and as such, it fits the relevant SWIM Yellow Profile requirements. Accepts Request: get WSDL formatted description of the service. Sends Response: WSDL formatted description of the service. Accepts Request: SOAP enveloped WFS 2.0.0 GetCapabilities Sends Response: SOAP enveloped WFS 2.0.0 Capabilities, XML, OGC Filter spec. compliant Accepts Request: SOAP enveloped WFS 2.0.0, compliant with OGC Filter spec. Sends Response: SOAP enveloped WFS 2.0.0, Digital NOTAM event list, AIXM5.1

3.2 Contacts

The following list contains the contacts for the SWIM Service Instances that are assessed for SWIM Compliance. The information is needed to be able to contact the right person in the case that more evidence or clarifications are required.

Service Name	Contacts
Digital NOTAM AIFS / WFS	[redacted]
Aeronautical Feature AIFS / WFS	

	[redacted]
Aeronautical Maps AIMS / WMS	
Aerodrome Maps AMIS / WFS	
FNS-NDS / US Digital NOTAM SOAP WFS	

3.3 Compliance with ISRM

3.3.1 Purpose

The purpose of checking the ISRM compliance is to ensure that the service instance, i.e. the realisation of the service within the used technology context, meets the description of the logical service in (or derived from) the ISRM.

3.3.2 ISRM Compliance Level

This section shall contain the assessment level against the ISRM for of each of the services.

- The name and version of the service
- The SWIM Compliance Level with ISRM

Service Instance Name	Logical Service Name	ISRM Compliance Level
Digital NOTAM AIFS / WFS	AIFS	ISRM Compliant
Aeronautical Feature AIFS / WFS	AIFS	ISRM Compliant
Aeronautical Maps AIMS / WMS	AIMS	ISRM Compliant
Aerodrome Maps AMIS / WFS	AMIS	ISRM Compliant
FNS-NDS / US Digital NOTAM SOAP WFS	AIFS	ISRM Ready

3.3.3 Version of the ISRM

- ISRM 1.1
- European ATM Service Description for the Aeronautical Information Feature Service (AIFS) [19]
- European ATM Service Description for the AeronauticalInformationMapService (AIMS) [20]
- European ATM Service Description for the Aerodrome Map Information Service (AMIS) [21]

3.3.4 Assessment Result

For each of the services that are assessed, the evidence shall be provided for the ISRM compliance (i.e. for each service, either the section 'evidence for ISRM Ready' or 'evidence for ISRM Compliant' needs to be completed).

3.3.4.1 Evidence for ISRM Compliant – Service Instance *Digital NOTAM AIFS / WFS*

3.3.4.1.1 Naming Compliance

The service is an Aeronautical Information Feature Service (AIFS) instance, which is described in ISRM 1.1.

3.3.4.1.2 Dynamic Compliance

The service implements the service interface ProvidedAeronauticalInformationFeature and the following operations:

- GetCapabilities()
- GetFeature()
- GetPropertyValue()
- DescribeFeatureType()
- DescribeStoredQueries()
- ListStoredQueries()

The list of implemented operations can be checked in the attachment of section 3.5.4.1.1.

MEPs are described in section 3.5.4.1.2.

3.3.4.1.3 QoS/NFR Compliance

- No QoS/NFR requirements are available for EXE-13.02.02-VP-462.

3.3.4.2 Evidence for ISRM Compliant – Service Instance *Aeronautical Feature AIFS / WFS*

3.3.4.2.1 Naming Compliance

The service is an Aeronautical Information Feature Service (AIFS) instance, which is described in ISRM 1.1.

3.3.4.2.2 Dynamic Compliance

The service implements the service interface ProvidedAeronauticalInformationFeature and the following operations:

- GetCapabilities()
- GetFeature()
- GetPropertyValue()
- DescribeFeatureType()
- DescribeStoredQueries()
- ListStoredQueries()

The list of implemented operations can be checked in the attachment of section 3.5.4.2.1.

MEPs are described in section 3.5.4.2.2.

3.3.4.2.3 QoS/NFR Compliance

- No QoS/NFR requirements are available for EXE-13.02.02-VP-462.

3.3.4.3 Evidence for ISRM Compliant – Service Instance *Aeronautical Maps AIMS / WMS*

3.3.4.3.1 Naming Compliance

The service is an AeronauticalInformationMapService (AIMS) instance, which is described in ISRM 1.1.

3.3.4.3.2 Dynamic Compliance

The service implements the service interface AccessMapService and the following operations:

- GetCapabilities()
- GetMap()
- GetFeatureInfo()

The list of implemented operations can be checked in the attachment of section 3.5.4.3.1.

MEPs are described in section 3.5.4.3.2.

3.3.4.3.3 QoS/NFR Compliance

No QoS/NFR requirements are available for EXE-13.02.02-VP-462.

3.3.4.4 Evidence for ISRM Compliant – Service Instance *Aerodrome Maps AMIS / WFS*

3.3.4.4.1 Naming Compliance

The service is an Aerodrome Map Information Service (AMIS) instance, which is described in ISRM 1.1.

3.3.4.4.2 Dynamic Compliance

The service implements the service interface AccessAMDBMap and the following operations:

- GetCapabilities()
- GetFeature()
- GetPropertyValue()
- DescribeFeatureType()
- DescribeStoredQueries()
- ListStoredQueries()

The list of implemented operations can be checked in the attachment of section 3.5.4.4.1.

The MEPs are described in section 3.5.4.4.2.

3.3.4.4.3 QoS/NFR Compliance

No QoS/NFR requirements are available for EXE-13.02.02-VP-462.

3.3.4.5 Evidence for ISRM Compliant – Service Instance *FNS-NDS / US Digital NOTAM SOAP WFS*

3.3.4.5.1 Naming Compliance

The service is an Aeronautical Information Feature Service (AIFS) instance, which is described in ISRM 1.1. However, the service provided by FAA does not comply with the naming imposed by ISRM.

3.3.4.5.2 Dynamic Compliance

The service implements a service interface compatible with the ProvidedAeronauticalInformationFeature service interface imposed by ISRM 1.1 and the following operations:

- GetCapabilities()
- GetFeature()

- GetPropertyValue()
- DescribeFeatureType()
- DescribeStoredQueries()
- ListStoredQueries()

The list of implemented operations can be checked in the attachment of section 3.5.4.5.1.

The MEPs are described in section 3.5.4.5.2.

3.3.4.5.3 QoS/NFR Compliance

- No QoS/NFR requirements are available for EXE-13.02.02-VP-462.

3.4 Compliance with AIRM

3.4.1 Purpose

The purpose of checking the AIRM compliance is to ensure that the service instance message is based on the AIRM, so to ensure that the semantics of the information is preserved in the information exchange.

3.4.2 Version of the AIRM

This section shall contain:

- The version of the AIRM to which compliance has been demonstrated
- A reference to the AIRM version

Version information

3.4.3 AIRM Compliance Level

This section shall contain the assessment level against the AIRM for of each of the services.

- The name and version of the service
- The SWIM Compliance Level with AIRM

Service instance Name	AIRM Compliance Level
Digital NOTAM AIFS / WFS	AIRM Compatible
Aeronautical Feature AIFS / WFS	AIRM Compatible
Aeronautical Maps AIMS / WMS	AIRM Compatible
Aerodrome Maps AMIS / WFS	AIRM Ready (experimental AMXM)
FNS-NDS / US Digital NOTAM SOAP WFS	AIRM Compatible

Note: The AIRM is available: [16].

3.4.4 Assessment Result

For each of the services that are assessed, the evidence shall be provided for the AIRM compliance (i.e. for each service, either the section 'evidence for AIRM Ready' or 'evidence for AIRM Compatible' needs to be completed).

3.4.4.1 Evidence for AIRM Compatible – Service instances *Digital NOTAM AIFS/WFS, Aeronautical Feature AIFS/WFS, FNS-NDS / US Digital NOTAM SOAP WFS*

All three services are providing information in AIXM 5.1 format. AIXM 5.1 is one of the primary AIM exchange models and is already fully mapped to AIRM. It is beyond the scope of this document to provide the mapping of AIXM5.1 to AIRM.

3.4.4.2 Evidence for AIRM Ready – Service instance *Aeronautical Maps AIMS / WMS*

The service creates maps based on information that it receives in AIXM 5.1 format. Nevertheless, there is no specific Map information model entity in AIRM at this moment. The service's response is a single object of type ByteType according to AIRM (a map image in binary format). This is consistent with the service definition in ISRM 1.1 which specifies a MapResponse entity comprised of a "map" object of type BinaryType and a "type" attribute of type CharacterString. As such the validation exercise team claims at least the "AIRM Ready" compliance level, while it is up to the reviewers to assess this claim and maybe even assign "AIRM Compatible" compliance level.

3.4.4.3 Evidence for AIRM Ready – Service instance *Aerodrome Maps AMIS / WFS*

The current implementation of the service is using an experimental AMXM (Airport Mapping eXchange Model) version which is driven by the EUROCAE ED-99B/ED-119A AMDB specification as part of the AMIS service provision of LFV.

For this experimental version of the Aerodrome Maps AMIS / WFS there is currently no formal mapping available between the used AMXM and AIRM. This report will make no attempt to provide such mapping as this goes beyond the amount of planned work for the authoring of this report and the activities of 13.02.02 were already planned way in advance of the time, the SWIM Compliance Framework became available. An additional reason is the fact that AIXM5.1 has been mapped to ED99B as part of ADQ work, thus providing through the AIXM5.1 an indirect mapping to the AIRM. Evidence of this mapping is documented by the ED99A to AIXM 5.1 Mapping [24].Eurocontrol experts in the AMDB standardisation field stated that a direct mapping to the AIRM is technically possible and will be subject to future work of the EUROCAE/RTCA WG44/SC217 activities.

Indeed, it is to be noted that the current EUROCAE/RTCA standard update activity in relation to SWIM will lead to new versions of the EUROCAE AMDB standards that will include two technical artefacts for service implementation:

- The AMDB UML model ("AMXM")
- The AMDB XML Schema ("AMXS")

The AMXM will be fully mapped to the SESAR AIRM and the AMXS will be fully derived from the AMXM, thus leading towards an AIRM Compliant specification in the context of SWIM and published by EUROCAE/RTCA early Q3 2015.

As per publication of ED-99D/ED-119C it is therefore expected that the current experimental state of the AMXM/AMXS will be leveraged to become an industry standard.

The OuA will still demonstrate the benefits of using the current data exchange format for AMDB data in relation to the use of AIXM5.1 for aeronautical data.

3.4.5 AIRM Change Requests

No change requests have been made so far to the AIRM CCB.

3.5 Compliance with SWIM-TI TS

3.5.1 Purpose

The purpose of checking the SWIM TI compliance is to ensure that the service instance is instantiated on a given SWIM-TI Profile.

3.5.2 Evidence for TI Compliance Level

Service instance Name	SWIM TI Compliance Level
Digital NOTAM AIFS / WFS	SWIM TI Compliant
Aeronautical Feature AIFS / WFS	SWIM TI Compliant
Aeronautical Maps AIMS / WMS	SWIM TI Compliant
Aerodrome Maps AMIS / WFS	SWIM TI Compliant
FNS-NDS / US Digital NOTAM SOAP WFS	SWIM TI Ready

3.5.3 Version of the TI

This section shall contain:

- This report is claiming compliancy of the services with SWIM TI Yellow Profile conform to SWIM Profiles for Step 2 Iteration 2.1 [10]
- From an Interoperability point of view, all services are compliant with at least one of the requirements outlined in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]
- From a MEP point of view, all services are compliant with at least one of the requirements outlined in section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]
- From a Data Management point of view, all services are compliant with at least one of the requirements outlined in section 3.2.1.3 of the SWIM TI Yellow Profile TS [11]

Version information

3.5.4 Assessment Result

For each of the services that are assessed, the evidence shall be provided for the TI compliance (i.e. for each service, either the section 'evidence for TI Ready' or 'evidence for TI Compliant' needs to be completed).

3.5.4.1 Evidence for TI Compliant – Service instance *Digital NOTAM AIFS / WFS*

We claim "SWIM TI Compliant" compliance level for this service.

3.5.4.1.1 Physical Service Definition Evidence

The service is implemented as a WFS 2.0.0 service. Its service description is retrieved using a GetCapabilities request. The response is:

DigitalNotam_WFS_Capabilities.xml

We claim here compliancy with at least one of the requirements outlined in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]

3.5.4.1.2 Message Exchange Patterns (MEP) evidence

The implemented MEP pattern is based on the WFS 2.0.0 request/response pattern.

Request example:

DigitalNotam_WFS_Request.txt

Response example:

DigitalNotam_WFS_Response.xml

We claim here compliancy with at least one of the requirements section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]

3.5.4.1.3 SWIM TI compliancy evidence

The SWIM TI prototype hosting the service is provided by P14.02.09, the verification results are available in SWIM TI V2.0.0 Verification Report [23].

3.5.4.2 Evidence for TI Compliant – Service instance *Aeronautical Feature AIFS / WFS*

We claim “SWIM TI Compliant” compliance level for this service.

3.5.4.2.1 Physical Service Definition Evidence

The service is implemented as a WFS 2.0.0 service. Its service description is retrieved using a GetCapabilities request. The response is:

AIFS_WFS_GetCapabilities.xml

We claim here compliancy with in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]

3.5.4.2.2 Message Exchange Patterns (MEP) evidence

The implemented MEP pattern is based on the XXXX request/response pattern.

Request example:

AIFS_WFS_GetFeatrure_Request.xml

Response example:

AIFS_WFS_GetFeatrure_Response.xml

We claim here compliancy with section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]

3.5.4.2.3 SWIM TI compliancy evidence

The SWIM TI prototype hosting the service is provided by P14.02.09, the verification results are available in SWIM TI V2.0.0 Verification Report [23].

3.5.4.3 Evidence for TI Compliant – Service instance *Aeronautical Maps AIMS / WMS*

We claim "SWIM TI Compliant" compliance level for this service.

3.5.4.3.1 Physical Service Definition Evidence

The service is implemented as an AIMS WMS 2.0.0 service. Its service description is retrieved using a GetCapabilities request. The response is:

AIMS_WMS_Capabilities.xml

We claim here compliancy with in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]

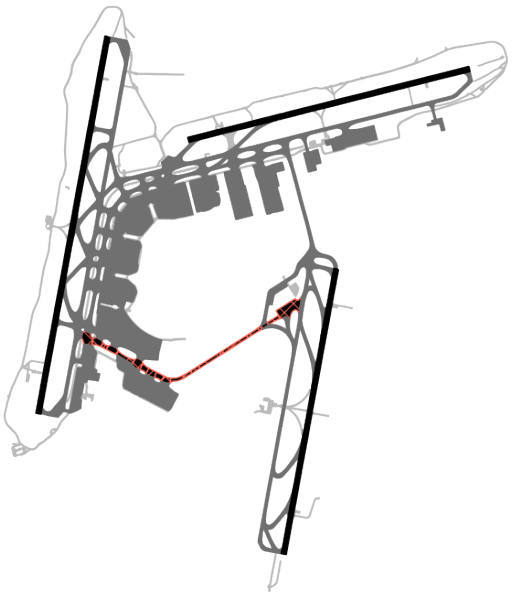
3.5.4.3.2 Message Exchange Patterns (MEP) evidence

The implemented MEP pattern is based on the WMS request/response pattern.

Request example:

AIMS_WMS_Request.txt

Response example:



Please note that this is a map that coalesces airport maps and Digital NOTAM(TWY closed) information in one response.

We claim here compliancy with section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]

3.5.4.3.3 SWIM TI compliancy evidence

The SWIM TI prototype hosting the service is provided by P14.02.09, the verification results are available in SWIM TI V2.0.0 Verification Report [23].

3.5.4.4 Evidence for TI Compliant – Service instance *Aerodrome Maps AMIS / WFS*

We claim "SWIM TI Compliant" compliance level for this service.

3.5.4.4.1 Physical Service Definition Evidence

The service is implemented as a WFS 2.0.0 service. Its service description is retrieved using a GetCapabilities request. The response is:

LFV_AMIS_WFS_GetCapabilities.xml

We claim here compliancy with in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]

3.5.4.4.2 Message Exchange Patterns (MEP) evidence

The implemented MEP pattern is based on the WFS 2.0.0 request/response pattern.

Request example:

LFV_AMIS_WFS_Request.xml

Response example:

LFV_AMIS_WFS_Response.xml

We claim here compliancy with section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]

3.5.4.4.3 SWIM TI compliancy evidence

The service is currently not hosted by an existing SWIM TI prototype yet. However due to the nature of its implementation (based on the OTS open-source GIS software of widespread usage that hosts it in addition to the already evidenced compliance in the previous two sections), it can be easily moved to and hosted by a SWIM TI prototype developed by P14.02.09.

3.5.4.5 Evidence for TI Compliant – Service instance *FNS-NDS / US Digital NOTAM SOAP WFS*

We claim SWIM TI Ready compliance level for this service.

3.5.4.5.1 Physical Service Definition Evidence

We claim here compliancy with in section 3.1.8.2 Interoperability of the SWIM TI Yellow Profile TS [11]

The service is implemented as a SOAP enveloped WFS 2.0.0 service. Its WSDL can be found here:

https://notams.aim.faa.gov/notamWFS/services/NOTAMDistributionService?wsdl

The FAA provided human readable service description/documentation is available here.

https://notams.aim.faa.gov/notamWFS/

Unfortunately, you will need a user/password to access the service directly (using SOAP request), because of that, we provide an example request/response sample pair for convenience in this and the MEP section below.

GetCapabilities response:

FNS-NDS_GetCapabilities.xml

3.5.4.5.2 Message Exchange Patterns (MEP) evidence

The implemented MEP pattern is based on the SOAP request/response pattern.

Request example:

FNS-NDS_Request.xml

Response example:

FNS-NDS_Response.xml

We claim here compliancy with section 3.2.1.1 Distribution of the SWIM TI Yellow Profile TS [11]

3.5.4.5.3 SWIM TI compliancy evidence

The service does not make use of a prototype developed by 14.02.09.

The service is a beta test provided by FAA, which requires users to comply with their beta testing user agreement and complete a registration process. The service requires user authentication for each request sent (see request example above).

Since the service is not provided by a SESAR member, a verification report concerning the SWIM profile compliancy is not available.

4 Feedback from SWIM Compliance Assessment Team

4.1 Service Instance assessment: conclusions and way forward

This chapter describes the narrative of the SWIM Compliance Assessment done by the SWIM Compliance Assessment Team. It provides information on the evidence material provided in the previous section, assumptions e.g. missing evidence, gaps and the way forward to for service to become SWIM Compliant.

4.2 SWIM Compliance Criteria

This chapter includes the possible needs for improvements of the R4 document for SWIM criteria for R5.

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