FIXM Primer

The **F**light **I**nformation **E**xchange **M**odel (FIXM) is an exchange model capturing Flight and Flow information that is globally standardised. The requirement for FIXM was identified by the International Civil Aviation Organisation (ICAO) Air Traffic Management Requirements and Performance Panel (ATMRPP) and endorsed at the 12th Air Navigation Conference as part of the Aviation System Block Upgrades (ASBU) and as described in Flight and Flow Information for a Collaborative Environment (FF-ICE).

15-Dec-2017

The FIXM Primer is the entry point to FIXM. It provides an introduction to FIXM, sets it into context, explains how the FIXM community is organised and lists its components and supporting materials.

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The authoritative reference for FIXM is www.FIXM.aero.

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Introduction

The FIXM Primer is the entry point to FIXM. It provides an introduction to FIXM, sets it into context, explains how the FIXM community is organised and lists its components and supporting materials. The target audience for the FIXM Primer is:

- Experts in the Flight domain and ATM expert modellers having an interest in the global harmonisation of Flight information
- Developers of systems and information services that require interoperable exchange of Flight information
- More generally, any organisations or individuals working in the field of ATM that are interested in exchanging Flight information

Introduction to FIXM

What is FIXM?

The **F**light **I**nformation **E**xchange **M**odel (FIXM) is an exchange model capturing Flight and Flow information that is globally standardised.

FIXM is the equivalent, for the Flight domain, of AIXM (Aeronautical Information Exchange Model) and WXXM (Weather Information Exchange Model) both of which were developed in order to achieve global interoperability for, respectively, AIS and MET information exchange. FIXM is therefore part of a family of technology independent, harmonized and interoperable information exchange models designed to cover the information needs of Air Traffic Management. According to the ICAO SWIM concept [1], FIXM is one of the models that belong to the "Information Exchange Models" layer of the ICAO SWIM Global Interoperability framework.

FIXM contains flight information items that satisfy, and are traceable to, ICAO requirements for Flight information exchanges.

Main FIXM drivers

The requirement for FIXM was identified by the ICAO Air Traffic Management Requirements and Performance Panel (ATMRPP) and endorsed at the 12th Air Navigation Conference as part of the Aviation System Block Upgrades (ASBU) and as described in Flight and Flow Information for a Collaborative Environment (FF-ICE) [2].

FIXM is developed as an enabler for the ICAO FF-ICE concept.

The **FIXM Strategy** document details the strategic objectives for FIXM to guide the overall FIXM development.

FIXM development and change management

The development of FIXM is **open** to any organisation or individual having a verifiable interest in FIXM. The collaborative group of FIXM Stakeholders forms the **FIXM Community of Interest** (CoI).

The evolution of FIXM is managed by the **FIXM Change Control Board** (CCB). It is supported by the **FIXM CCB Secretariat** (CCBS) which provides the technical and human resources for the management of the FIXM Change Proposals, of the FIXM components and of the FIXM online resources.

The FIXM CCB, FIXM CCBS and FIXM CoI act under the provision of the **FIXM Change Management Charter.** This document clarifies the roles and responsibilities of each group and details the FIXM change management process.

Because FIXM is an enabler for the ICAO FF-ICE concept, the FIXM development is supervised by the **ICAO ATMRPP**.

FIXM online resources

The development and release process of FIXM are supported by the following online resources:

- The **FIXM website** (www.FIXM.aero) serves as the authoritative reference for all FIXM materials. It stores the official FIXM releases and related materials endorsed by the FIXM CCB.
- The **FIXM Work Area** (https://ost.eurocontrol.int/sites/FIXM/SitePages/Home.aspx) is a SharePoint Environment created under OneSky Teams, the collaborative platform of the EUROCONTROL Extranet. It supports the day-to-day work on FIXM and facilitates the discussions between FIXM stakeholders about any FIXM-related subject. The **FIXM Work Area** complements the "static" FIXM website by providing a more "dynamic" environment in support of the evolution of FIXM.

Email distribution lists are created in support of the FIXM CCB and CCBS activities. The FIXM CCB can be reached at FIXM.CCB@eurocontrol.int. The FIXM CCB Secretariat can be reached at fixm.secretariat@eurocontrol.int

Note: FIXM online resources are provided or hosted by different members of the FIXM CoI. This does not imply any specific ownership of related content and structures by these members.

Downloading and using FIXM

Appendix A – List of FIXM v4..0 materials provides the links to all official - and latest - FIXM components and supporting documents, including guidance for implementing and using FIXM.

Commercial uses of FIXM are permitted as stated in the license agreement on page 2.

Becoming a member of the FIXM CoI or FIXM CCB

Becoming a registered member of the FIXM CoI is achieved by registering to the FIXM Work Area. The **FIXM website** provides guidance for completing this registration and for accessing and using the FIXM online resources.

The **FIXM Change Management Charter** defines the FIXM CCB membership rules. FIXM CCB membership requests shall be addressed directly to the FIXM CCB.

FIXM v4.1.0 overview

FIXM v4.1.0 scope

FIXM v4.1.0 supports the content of the individual ATS message fields described in ICAO Doc 4444 [3] and the new flight data items identified by ICAO ATMRPP as part of the requirements for FF-ICE Step 1. The main reference for the new FF-ICE Step 1 content of FIXM v4.1.0 is ATMRPP working paper ref. *ATMRPP-WG/32-WP/ 736_FF-ICE Implementation Guidance with Appendix*" [4].

FIXM v4.1.0 components

Appendix A – List of FIXM v4..0 materials provides the list of the FIXM v4.1.0 components and corresponding URLs.

Main changes

FIXM v4.1.0:

- Reflects the latest changes to the FF-ICE/1 Implementation Guidance Manual agreed by ICAO ATMRPP.
- Further rationalises the Dangerous Goods package as requested by ICAO. This rationalisation implies that some capabilities previously enabled by FIXM v4.0.0 are deprecated.
- Deprecates the Messaging package, in order to acknowledge an ambiguity regarding FF-ICE support by FIXM.

Forward data mapping is guaranteed with FIXM 4.0.0.

Plans for future FIXM versions

The **FIXM Release Plan** describes the intended scope and publication date of the future FIXM versions as foreseen by the FIXM CCB and ICAO ATMRPP..

Main FIXM References

[1] Manual On System Wide Information Management (SWIM) Concept, (Advanced Edition – 2015), ICAO Doc 10039

[2] Manual on Flight and Flow Information for a Collaborative Environment (First Edition – 2012), ICAO Doc 9965

[3] Procedures for Air Navigation Services: Air Traffic Management, ICAO Doc 4444, 15th Ed

[4] ATMRPP-WG/31-WP/736_FF-ICE Implementation Guidance with Appendix

Appendix A – List of FIXM materials

FIXM Strategy & Change Management

FIXM Strategy	Details the strategic objectives for FIXM.	https://www.fixm.aero/documents/FIXM%20Strategy.pdf
FIXM Change Management Charter	Clarifies the roles and responsibilities of the FIXM CCB, CCBS & CoI and details the FIXM change management process.	https://www.fixm.aero/documents/FIXM%20Change%20Management%20Charter.pdf
FIXM Release Plan	Provides the scope / content of future FIXM versions.	https://www.fixm.aero/documents/FIXM%20Release%20Plan.pdf

FIXM v4.1.0 – Main components

FIXM Logical Model v4.1.0	Captures in UML all the constructs that are required for system-to-system exchange of flight information, as required by ICAO.	https://www.fixm.aero/releases/FIXM-4.1.0/FIXM_Core_v4_1_0_Logical_Model.eap
FIXM XML Schemas v4.1.0	A realisation of the FIXM Logical Model expressed as a XML Schema Definition (XSD).	https://www.fixm.aero/releases/FIXM-4.1.0/FIXM_Core_v4_1_0_Schemas.zip

FIXM v4.1.0 – Supporting materials

FIXM v4.1.0 Primer *(this document)*	The entry point to FIXM.	https://www.fixm.aero/releases/FIXM-4.1.0/FIXM_Core_v4_1_0_Primer.pdf
FIXM v4.1.0 HTML Documentation	An online HTML description of the FIXM content derived programmatically from the main FIXM components.	https://www.fixm.aero/releases/FIXM-4.1.0/doc/schema_documentation_core/index.html

FIXM v4.1.0 Operational Data Description	Lists the main data items captured in FIXM v4.1.0 with their operational definitions, a list of acceptable synonyms and abbreviations etc. Also provides the traceability between the corresponding FIXM model elements and the ICAO requirements that FIXM has to satisfy.	https://www.fixm.aero/releases/FIXM-4.1.0/FIXM_Core_v4_1_0_Operational_Data_Description.pdf
FIXM v4.1.0 Implementation Guidance comprising • **ATS Message Content to FIXM Logical Model Map**	Provides non-prescriptive guidance and clarifications about the use of the main FIXM components. Provides a mapping between the FIXM Logical Model and ICAO Air Traffic Services messages as defined in ICAO Doc 4444.	**N/A as of December 2017. This package will be made available on 30 March 2017.**
FIXM Modelling Best Practices	Provides principles, rules and recommendations for developing and maintaining the FIXM Logical Model, and for creating extensions.	https://www.fixm.aero/releases/FIXM-4.1.0/FIXM_Core_v4_1_0_Modelling_Best_Practices.pdf
FIXM Development Guidelines	Provide guidelines for the construction of the main FIXM components so that interoperability with existing standards and legacy systems is ensured during the period of transition to FF-ICE.	https://www.fixm.aero/documents/FIXM%20Development%20Guidelines_v2.pdf
FIXM Modelling Workbench	A tool for developing, evaluating, and releasing all artefacts of the FIXM data modelling, including XSD Generation Service for extensions.	https://www.fixm.aero/tools.pl# *Note: this tool is subject to a different disclaimer.*