



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).

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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.

Details on the FIXM CCB and a list of its members is available on request from fixm.secretariat@eurocontrol.int.

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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 observed by the **ICAO ATMRPP** where new flight information requirements are vetted with the ATMRPP Operational Experts prior to incorporating into the FIXM model.

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 Col. This does not imply any specific ownership of related content and structures by these members.

Downloading and using FIXM

Appendix A 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 Col or FIXM CCB

Becoming a registered member of the FIXM Col 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.

Overview of the latest release

FIXM components

The term FIXM refers collectively to a set of technical components and associated documentation. FIXM Core is the principal component of this set. Appendix A provides the list of the FIXM components and corresponding URLs.

The latest release of FIXM Core is version 4.2.0. FIXM Core v4.2.0 comes together with a new “FF-ICE Message” Application Library (v1.0.0) that addresses the use of FIXM Core in the specific context of FF-ICE and that provides formal representation of the individual FF-ICE messages. A new “Basic Message” Application Library (v1.0.0) is also available in order to provide basic messaging support.

Scope of FIXM Core v4.2.0

The scope declaration of FIXM Core 4.2.0 is the same as FIXM 4.1.0, namely to provide harmonised representation of the flight data structures exchanged in the context of FF-ICE/R1.

Main changes in FIXM Core v4.2.0

- Reflects a more mature - but yet not 100% final - version of the FF-ICE/R1 requirements specified by the ICAO ATMRPP.
- Supports nillable properties enabling FF-ICE Flight Plan updates as described in the FF-ICE/R1 Implementation Guidance Manual.
- Contains more usable data structures for capturing information related to flight restrictions and constraints.
- Implements a new approach for generating XML schemas from the UML model.
- Removal of Messaging in its entirety from FIXM Core. Messaging is now supported by the new application libraries (FF-ICE and Basic Message Application Libraries).

The **FIXM Release Notes** provide further details about the changes implemented in this release.

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

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 Core v4.2.0

Logical Model	Captures in UML the flight data structures that are exchanged, in line with the scope declaration of FIXM.	https://www.fixm.aero/releases/FIXM-4.2.0/FIXM_Core_v4.2.0.eap
XML Schemas	A realisation of the Logical Model expressed as a XML Schema Definition (XSD).	https://www.fixm.aero/releases/FIXM-4.2.0/FIXM_Core_v4.2.0_Schemas.zip

FF-ICE Message Application Library v1.0.0

Logical Model	Captures in UML the FF-ICE Message data structures and the individual FF-ICE Message templates.	https://www.fixm.aero/releases/FFICE-Msg-1.0.0/FIXM_Ffice_Message_v1.0.0_with_Core_v4.2.0.eap
XML Schemas	A realisation of the Logical Model expressed as a XML Schema Definition (XSD).	https://www.fixm.aero/releases/FFICE-Msg-1.0.0/FIXM_Ffice_Message_v1.0.0_with_Core_v4.2.0_Schemas.zip

Basic Message Application Library v1.0.0

Logical Model	Captures in UML a generic Message structure.	https://www.fixm.aero/releases/Basic-Msg-1.0.0/FIXM_Basic_Message_v1.0.0_with_Core_v4.2.0.eap
XML Schemas	A realisation of the Logical Model expressed as a XML Schema Definition (XSD).	https://www.fixm.aero/releases/Basic-Msg-1.0.0/FIXM_Basic_Message_v1.0.0_with_Core_v4.2.0_Schemas.zip

Supporting materials

FIXM Primer <i>(this document)</i>	The entry point to FIXM.	https://www.fixm.aero/releases/FIXM-4.2.0/FIXM_Core_v4.2.0_Primer.pdf
HTML Documentation	An online HTML description of the FIXM content derived programmatically from the main FIXM components.	<p>FIXM Core v4.2.0: https://www.fixm.aero/releases/FIXM-4.2.0/doc/schema_documentation/Fixm.html</p> <p>FF-ICE Message Application Library v1.0.0: https://www.fixm.aero/releases/FFICE-Msg-1.0.0/doc/schema_documentation/ffice_message/FficeMessage.html</p> <p>FF-ICE Message Templates v1.0.0: https://www.fixm.aero/releases/FFICE-Msg-1.0.0/doc/schema_documentation/ffice_templates/FficeTemplates.html</p> <p>Basic Message Application Library v1.0.0: https://www.fixm.aero/releases/Basic-Msg-1.0.0/doc/schema_documentation/BasicMessage.html</p>
Requirements Traceability Document	Provides the traceability between the FIXM model elements and the ICAO requirements that FIXM has to satisfy.	https://www.fixm.aero/releases/FIXM-4.2.0/FIXM_Core_v4.2.0_Requirements_Traceability_Report.pdf
FIXM Implementation Guidance	Provides non-prescriptive guidance and clarifications about the use of the main FIXM components.	<p>Draft version available at: https://ost.eurocontrol.int/sites/FIXM/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Fsites%2FFIXM%2FShared%20Documents%2FFIXM%204%2E2%2E0%20Implementation%20Guidance%20%2D%20development%20area&FolderCTID=0x01200062214A8F47CB7B41ADD94F20628B445C&View={DBAE6836-9D8E-42B5-86E1-58A529EB148F}</p> <p>Official publication will happen at a later date.</p>