Global Harmonization Through Collaboration

Welcome to the Flight Information Exchange Model (FIXM)

Presented By:
  Midori Tanino (FAA)
  Hubert Lepori (EUROCONTROL)

Date: August 29, 2012
## FIXM Welcome!

<table>
<thead>
<tr>
<th>TIME</th>
<th>BREAKOUT SESSION</th>
<th>SPEAKER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00pm - 2:10pm</td>
<td>Welcome!</td>
<td>Midori Tanino <em>(FAA)</em></td>
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<td>Hubert Lepori <em>(EUROCONTROL)</em></td>
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<tr>
<td>2:10pm - 2:45pm</td>
<td>Introduction to FIXM</td>
<td>Midori Tanino <em>(FAA)</em></td>
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<td>Hubert Lepori <em>(EUROCONTROL)</em></td>
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<td>Paul Chisholm <em>(Airservices Australia)</em></td>
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<tr>
<td>2:45pm – 3:30pm</td>
<td>FIXM Engineering Considerations</td>
<td>Ken Howard <em>(Volpe)</em></td>
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<td>3:30pm – 3:45pm</td>
<td>Break</td>
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<tr>
<td>3:45pm – 4:15pm</td>
<td>FIXM Technical Overview - General Philosophy</td>
<td>Bruce Taylor <em>(MIT-LL)</em></td>
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<tr>
<td>4:15pm – 5:00pm</td>
<td>FIXM Technical Overview - Developer Session</td>
<td>Bruce Taylor <em>(MIT-LL)</em></td>
</tr>
<tr>
<td>5:00pm - 5:15pm</td>
<td>Wrap-up and Q&amp;A</td>
<td>Midori Tanino <em>(FAA)</em></td>
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</table>
Global Harmonization Through Collaboration

Introduction to FIXM

Presented By:
  Midori Tanino (FAA)
  Hubert Lepori (Eurocontrol)
  Paul Chisholm (Airservices Australia)

Date: August 29, 2012
Introduction to FIXM

Today’s topics:

• FIXM Overview
• FIXM Roadmap
• Composition of FIXM Team
• International Collaboration / Guidance for Stakeholders / Relationship with ED-133
• An Enterprise Architecture Approach
• Flight Object Demonstrations
• Future Uses of FIXM
• Contact Us!
International Collaboration

ICAO ATMRPP

Alignment of semantic models

Harmonisation of Use cases & definitions

Common Flight Service Model

ACRIS Semantic Model

AIRM

CP 2.1

OV-7

CP 3.1

CP 3.2

FIXM

AIDX

Data Exchanges

ACRIS A-CDM

Services

mapping?

overlap

Semantic

ISRM

ACRIS

Semantic

Model

OVERVIEW

Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

NAV CANADA

airservices

EUROCAE

OGC®

ATM GIS

Federal Aviation Administration

Open Geospatial Consortium, Inc.
FIXM, the –XMs & ED133 in the EAEA
FIXM Extensions

• FIXM Extension = Addition to the core FIXM

• FIXM Extensions will be useful to:
  – Capture specific (local) Community of Interest requirements
  – Facilitate the interface between users of different FIXM versions
  – Support the Change Management Process of FIXM

• The concept is endorsed by the ICAO ATMRPP

• Need to manage the risk of proliferation of FIXM extensions
FIXM Demonstration Projects
Flight Object Demonstration History

• **International Flight Data Object (IFDO – Task D)**
  - In March 2009, the FAA successfully demonstrated FDO exchange between oceanic Air Traffic Control systems across the Atlantic Ocean (NAV Portugal’s Sistema Atlantico-SATL and the FAA’s New York ATOP system)

• **Surface Exchange Flight Data Object (SEFDO – Task F)**
  - In November 2009, the FAA successfully demonstrated the potential benefits provided by enabling FDO exchange between Atlantic-based airport surface stakeholders, collaborating ANSP entities, and flight operators

• **Asia/Pacific Flight Object Demonstration (Task K)**
  - In May 2012, the FAA successfully demonstrated the exchange of FIXM-based Flight Object with domestic and Pacific Region stakeholders in a step towards global harmonization of the Flight Object and FIXM

• **Coming in 2014/2015, Mini-Global Flight Object Demonstration**
Objective

- Implement early version of the Flight Information Exchange Model (FIXM) in a multi-domain environment to support information sharing between NAS domestic and Pacific-based stakeholders

Benefits

- Step towards achieving global harmonization of Flight Object and FIXM

Description

- Gate-to-gate scenarios integrating surface, en route, oceanic systems
- New demo applications emulating potential future FO-enabled systems (e.g., Hazardous Cargo, Fleet Prioritization)
- Live/recorded Traffic Flow Management Data Exchange (TFMDE) data from Airservices Australia and JCAB, and live Aircraft Situation Display to Industry (ASDI) data received via SWIM architecture
Asia/Pacific FO Demonstration

- Seamless, Conflict-Free Boundary Coordination
- Priority-based arrival sequencing and enhanced airport planning
- Hazardous Cargo information visible to authorized users under Emergency condition
- FOC re-plans user-preferred trajectory to meet Fleet Prioritization goal

Airservices Australia

Japan (JCAB)
Key Partnerships for Demo
Pacific FDO Demo Architecture

- ZOA ATOP
- FAAS
- FO Demo Web App
- TDDS
- FTB FOXS
- ZLA ERAM
- Regional FIS
- Adapter
- TFMDE (Live/Recorded)
- Adapter
- LAX SDSS
- FO Demo Web App
- FTB NEMS Connection
- Adapter
- TFMDE (Live)
- Adapter
- FO Demo Web App
- VanTool
- Airservices Australia
- ASDI
- TFMDE (Live)
- Secure Comm's
- Scenario Services
- Remote Access (Secure Internet)
- Secure Comm's
- NEMS (Alliance)
- NEMS (FTB)
- TFMDE (Recorded)
- TFMDE (Live)
- Secure Comm's
- JCAB Recordings
- Existing FTB
- Modified FTB
- New
- FTB LAN Connection
- FTB NEMS Connection
- Logical Connection

Pacific FDO Environment
Facilitate a demonstration of an ANSP-to-ANSP interaction through SWIM core services
For more information on demonstrations, visit:

www.FIXM.aero

--> Documents

--> Demonstration
Future Uses of FIXM
Airservices Australia

ODS (Operational Data Services)

- Project underway at Airservices Australia
- SOA based service delivery platform
- Consolidation of data and services
- Single source of truth
- Single implementation of logic
- Interoperability
- Governance
- Red Hat SOA technology stack (now being merged with FuseSource)
- Project primarily SOA infrastructure
- First service will be delivered by project
FIXM within SESAR (future usage)
Airservices Australia – ODS and FIXM

- Initial service is a Flight Planning Service
- Will replace current NAIPS flight planning service
- FIXM is the data model
- Started with FIXM 0.1.2
- Now migrating to FIXM 1.0 (ICAO 2012)
- Minor extensions
  - Itinerary (eventually in FIXM)
  - SARTIME
- Operational flight planning service by end of 2013
Airservices Australia – Future Plans

• ODS will become Airservices FOS (Flight Object Server)
• ODS will provide Airservices GUFI service
• Incorporation of further data items:
  – TFM (FIXM 2)
  – Schedules (OAG & Aircraft Operator)
  – Position information (radar, ADS-B, A-SMGCS)
  – Aircraft Operator feeds
  – Airport feeds
• Delivery of Services to Industry
• Roadmap: FIXM & ODS
• **Flight Object Exchange Services (FOXS)**
  – Demonstrate FOXS architecture design
  – Work with international counterparts to experiment GUFI service

• **Flight Data Publication Services (FDPS)**
  – FDPS is part of SWIM Segment 1
  – FDPS make ERAM data available to data consumers in a SWIM-compliant manner
  – Special version of FDPS-FIXM based on FXIM 1.0 will be created
  – Special version of FDPS-FIXM will be integrated into FIXM 2.0
    • Some core and some NAS extension
  – Scheduled for implementation in 2015
## FIXM Scope Roadmap

<table>
<thead>
<tr>
<th>Version</th>
<th>Target Release</th>
<th>Version Contents</th>
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<tbody>
<tr>
<td>1.0</td>
<td>Aug 2012</td>
<td>• ICAO FP 2012</td>
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<tr>
<td></td>
<td></td>
<td>• GUFI</td>
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<tr>
<td></td>
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<td>• NAS Flight Plan Data</td>
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<tr>
<td></td>
<td></td>
<td>• Initial ED-133 element inclusions</td>
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<tr>
<td>1.1</td>
<td>Dec 2012</td>
<td>• Hazardous Cargo (Dangerous Goods)</td>
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<tr>
<td>2.0</td>
<td>Aug 2013</td>
<td>• ICAO 2012 ATS (15 remaining messages)</td>
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<tr>
<td></td>
<td></td>
<td>• TFM (Strategic)</td>
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<td></td>
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<td>• Fleet prioritization, TFM DE, CDM</td>
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<td></td>
<td></td>
<td>• Airport CDM</td>
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<tr>
<td>3.0</td>
<td>Aug 2014</td>
<td>• Surface data (anything not covered in Airport CDM and TFM/CDM elements)</td>
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<td></td>
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<td>• ANSP to ANSP boundary crossing (tactical)</td>
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<td></td>
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<td>• 4D Trajectories (1st package)</td>
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<tr>
<td>4.0</td>
<td>Aug 2015</td>
<td>• Security elements (1st package)</td>
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<td>• Unmanned Aircraft Systems (UAS)</td>
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<td>• 4DT (2nd package)</td>
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FIXM Evolution

• Operational Validation

• Technical Validation (OGC)

• Integration with broader information management frameworks

• Release plan dependent on validation
Contact Us!

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• Paul Chisholm  Paul.Chisholm@AirservicesAustralia.com
• Paul Losee  Paul.Losee@faa.gov

For more information, visit:

www.FIXM.aero

(to participate in FIXM Discussion Boards and for automatic email notifications, just complete the quick and easy on-line registration!)