



International Civil Aviation Organization

The Seventh Meeting of the ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFMSG/7)

Fukuoka, Japan, 15 – 19 May 2017

Agenda Item 6: Development of Regional ATFM Framework

FIXM EXTENSION

(Presented by the Secretariat)

SUMMARY

This paper presents a proposal that ATFM/SG develops an extension to the Flight Information Exchange Model to ensure the publishing and subscription to a minimum suite of ATFM information is enabled in the Asia/Pacific Region.

1. INTRODUCTION

1.1 The Flight Information Exchange Model (FIXM), referenced in the Global Air Navigation Plan, and the Asia/Pacific Regional Framework for Collaborative ATFM, is part of a suite of data exchange formats, including Aeronautical Information Exchange Model (AIXM) and Meteorological Information Exchange Model (IWXXM), intended to provide a global standard for information exchange. FIXM is a data interchange format for sharing information about flights throughout their lifecycle.

1.2 The ATFM Framework document states:

FIXM version 3.0 (or later), extended where necessary to accommodate additional regional requirements, is the agreed ATFM information exchange model for exchanging ATFM data between ATFM systems in the Asia/Pacific Region.

1.3 More information on FIXM is available at www.fixm.aero.

2. DISCUSSION

ICAO ATM Operations Panel Outcomes

2.1 The Fourth Meeting of the ICAO Air Traffic Management Operations Panel (ATMOPSP/4, Dubai, United Arab Emirates, 2 – 6 April 2017) was informed that many data elements related to ATFM had been removed from the latest FIXM release (FIXM 4.0), generating confusion among ATFM experts. The elements would be re-integrated in FIXM once the ATM Requirements and Performance Panel (ATMRPP) confirmed to the experts working on FIXM that they should be. Re-integration could occur in FIXM 4.1, depending on whether the necessary operational scenarios were provided by May 2017, or in FIXM 5.0 which is expected to be released in 2019.

2.2 The lack of specific ATFM elements in FIXM could lead to significant barriers in cross-border ATFM in the Asia/Pacific Region, and contribute to the Region’s failure to meet the timelines specific in the performance improvement plan of the Regional ATFM framework.

Asia/Pacific FIXM Extension

2.3 It is proposed that ATFM/SG develops a FIXM extension that would include a minimum suite of ATFM elements to support the Regional ATFM framework objectives.

2.4 ATFM/SG should consider whether elements developed should be confined to the minimum necessary for publication and subscription in the distributed multi-nodal ATFM environment, pending the inclusion of a more comprehensive range of elements in core FIXM, or whether all of the ATFM elements currently identified in the ATFM Framework are developed for the FIXM extension.

2.5 The Regional ATFM Framework includes, in its Appendix D, standardized ATFM terminology to enable harmonized, interoperable cross-border ATFM. **Attachment A** provides the terminology, both in general and arranged according to the phase of flight.

2.6 The ATFM Framework specifies the minimum items of ATFM information that ATFM systems and processes should share (**Table 1**), considering the scope and performance objectives of the current version of the Framework and the stage of development of the multi-nodal ATFM network concept.

Estimated	Calculated	Actual	Applicable
EOBT		AOBT	Terminal Gate
	CTOT	ATOT	Departure Runway
ETO	CTO	ATO	RFIX or AFIX
ELDT	CLDT	ALDT	Arrival Runway
Other			
ADP			

Table 1: Minimum ATFM Information for Sharing by ATFM Systems and Processes

2.7 The meeting should note that the transmission of the ATFM Daily Plan (ADP) may be more appropriately included in the Aeronautical Information Exchange Model (AIXM).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) agree to develop an Asia/Pacific FIXM Extension for ATFM purposes;
- c) determine the scope of the extension;
- d) identify participant States and Organizations with the requisite skills and knowledge to lead and participate in this activity; and
- e) discuss any relevant matters as appropriate.

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ATFM TERMINOLOGY AND COMMUNICATIONS

ATFM Terminology - General

Acronym	Term	Definition
AAR	Airport Acceptance Rate	Arrival capacity of an airport normally expressed in movements per hour
ADR	Airport Departure Rate	Departure Capacity of an airport normally expressed in movements per hour
ASD	Aircraft Situation Display	ATC Aircraft/Traffic Situation Display
AFIX	Arrival Fix	A waypoint during the arrival phase of a flight. In the context of ATFM it could a waypoint where an ATFM Measure may be applied
CDM	Collaborative Decision-Making	Process which allows decisions to be taken by amalgamating all pertinent and accurate sources of information, ensuring that the data best reflects the situation as known, and ensuring that all concerned stakeholders are given the opportunity to influence the decision. This in turn enables decisions to best meet the operational requirements of all concerned.
CDR	Conditional Route	ATS route that is available for flight planning and use under specific conditions
DFIX	Departure Fix	The first published fix/waypoint used after departure of a flight.
DMAN	Departure Manager	A planning system to improve the departure flows at an airport by calculating the Target Take-Off Time (TTOT) and Target Startup Approval Time (TSAT) for each flight, taking multiple constraints and preferences into account
FCA	Flow Constrained Area	An sector of airspace where normal flows of traffic are constrained, which could be caused by weather, military exercise etc.
FMP	Flow Management Position	A position in any ATCC that monitors traffic flows and implements or requests ATFM measures to be implemented"
GDP	Ground Delay Program	ATFM process where aircraft are held on the ground in order to manage capacity and demand in a specific volume of airspace or at a specific airport. In the process departure times are assigned and correspond to available entry slots into the constrained airspace or arrival slots into the constrained airport

Acronym	Term	Definition
GS	Ground Stop	A tactical ATFM measure where some selected aircraft remain on the ground
MINIT	Minutes in Trail	A tactical ATFM measure expressed as the number of minutes required between successive aircraft. It is normally used in airspace without air traffic surveillance or when transitioning from surveillance to non-surveillance airspace, or even when the spacing interval is such that it would be difficult for a sector controller to measure it in terms of miles
MIT	Miles in Trail	A tactical ATFM measure expressed as the number of miles required between aircraft (in addition to the minimum longitudinal requirements) to meet a specific criterion which may be separation, airport, fix, altitude, sector or route specific. MIT is used to organize traffic into manageable flows as well as to provide space to accommodate additional traffic (merging or departing) in the existing traffic flows. It will never be less than the separation minima.
RFX	En-route Fix	A waypoint during the en-route phase of a flight. In the context of ATFM it could a waypoint where an ATFM Measure may be applied
SUB	Slot Swapping	The ability to swap departure slots gives AUs the possibility to change the order of flight departures that should fly in a constrained area
-	ATFM Measure	ATFM Measure which will balance demand against capacity or assist in the safe expeditious flow of traffic

ATFM Terminology – Phase of Flight

Acronym	Term	Definition
SOBT	Scheduled off Block Time	The time that an aircraft is scheduled to depart from the parking position
EOBT	Estimated Off Block Time	The estimated time that an aircraft will start movement associated with departure
TOBT	Target Off - Block Time	The time that an aircraft Operator or Ground handler estimates that an aircraft will be ready to startup/pushback immediately upon reception of clearance from the tower.
TSAT	Target Start Up Approval Time	The time provided by ATC taking into account TOBT, CTOT and/or the traffic situation that an aircraft can expect start up/push back approval
COBT	Calculated Off Block Time	A time calculated and issued by ATFM Unit, as a result of tactical slot allocation, at which a flight is expected to pushes back / vacates parking position so as to meet a CTOT taking into account start and taxi time.
AOBT	Actual Off Block Time	The time the aircraft pushes back / vacates parking position (Equivalent to Airline / Handlers ATD – Actual Time of Departure & ACARS=OUT)
STOT	Scheduled Take Off Time	The estimated take off time derived from an aircraft operators schedule, typically based on a standard taxi-out time
PTOT	Planned Take Off Time	Time aircraft is expected to take off derived from the flight plan.
TTOT	Target Take Off Time	The Target Take off Time taking into account the TOBT/TSAT plus Estimated Taxi-Out Time
CTOT	Calculated Take off Time	A time calculated and issued by ATFM Unit, as a result of tactical slot allocation, at which a flight is expected become airborne
ETOT	Estimated Take Off Time	The Estimated take off time taking into account EOBT plus Estimated Taxi-Out Time
ATOT	Actual Take Off time	The time that an aircraft takes off from the runway (Equivalent to ATC ATD–Actual Time of Departure, ACARS = OFF)
SEET	Scheduled Estimated En-route Time	The estimated elapsed time of a flight derived from the aircraft operators schedule
ETO	Estimated Time Over	Estimated time at which an aircraft would be over a fix, waypoint or particular location typically where air traffic congestion is expected

Acronym	Term	Definition
CTO	Calculated Time Over	Time calculated and issued by ATFM Unit, as a result of tactical slot allocation, at which flight is expected to be over a fix, waypoint or particular location typically where air traffic congestion is expected (referred to in FIXM 2.0 as "Airspace Entry Time - Controlled")
PLDT	Planned Landing Time	The expected landing time of a flight derived from the flight plan
SLDT	Scheduled Landing Time	Scheduled time aircraft is expected to land on a runway, typically based on Scheduled In-Block Time (SIBT) and a standard taxi-in time
TLDT	Target Landing Time	Targeted Time from the Arrival Management process at the Threshold, taking runway sequence and constraints into account; Progressively refined planning time used to coordinate between arrival and departure management processes
CLDT	Calculated Landing Time	A landing time calculated and issued by ATFM unit, as a result of tactical slot allocation at which a flight is expected to land on a runway
ELDT	Estimated Landing Time	The estimated time that an aircraft will touch-down on the runway (equivalent to ETA)
ALDT	Actual Landing Time	Actual time an aircraft lands on a runway (Equivalent to ATC ATA –Actual Time of Arrival = landing, ACARS=ON)
SIBT	Scheduled In Block Time	The Time that an aircraft is scheduled to arrive at its first parking position.
CIBT	Calculated In Block Time	An in block time calculated and issued by ATFM unit, as a result of tactical slot allocation at which a flight is expected to be at its first parking position.
AIBT	Actual in block time	The time that an aircraft arrives in-blocks (Equivalent to Airline/Handler ATA –Actual Time of Arrival, ACARS = IN)

ATFM Terminology Map

Phase of Flight	Scheduled	Flight Plan	Target (Airline)	Target (ANSP)	ATFM Measure	Estimated	Actual
Off-Block Time (OBT)	SOBT	EOBT	TOBT	TSAT	COBT		AOBT
Take-Off Time (TOT)	STOT			TTOT	CTOT	ETOT	ATOT
Time Over (TO)					CTO	ETO	ATO
Landing Time (LDT)	SLDT			TLDT	CLDT	ELDT	ALDT
In-Block Time (IBT)	SIBT				CIBT		AIBT

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