



*International Civil Aviation Organization*

**The Fourth Meeting of ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/4)**

Bangkok, Thailand, 1 – 5 December 2014

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**Agenda Item 5: Development of Regional ATFM Framework**

**ATFM TRAINING REQUIREMENTS DOCUMENT**

(Presented by EU-AATIP, supported by Thailand)

**SUMMARY**

This paper presents a first draft of an ATFM Training Requirements Document, prepared by the EU-AATIP project, supported by and in coordination with AEROTHAI, Thailand.

The attached document is presented in the format of an EU-AATIP deliverable, but the aim is to reach an APAC wide agreement that once the document has reached acceptable maturity, it is submitted to ICAO as draft material for inclusion in a future version of ICAO Doc 9971 (Manual for Collaborative ATFM).

**1. INTRODUCTION**

1.1 **Attachment A** to this Working Paper is a first draft of an ATFM Training Requirements Document, intended to provide information and guidance on the training and expertise required for personnel involved in the operation of an ATFM service.

1.2 The attached document has been prepared by the EU-AATIP project, supported by and in coordination with AEROTHAI, Thailand. The work has been carried out as part of the AATIP task 4.3, Cross border ATFM, and follows from the discussions held with the ASEAN member State ATFM experts at the EU-AATIP workshop on ATFM (February 2014, Chiang Mai, Thailand).

**2. DISCUSSION**

2.1 An ATFM service needs to be staffed by personnel with sufficient knowledge and understanding of the ATM system they are supporting and the potential effects of their work on the safety and efficiency of air navigation. To ensure this and in the frame of their training policy, States and ANSPs should establish training plans to ensure that ATFM service staff are properly trained.

2.2 ICAO Doc 9971, Manual on Air Traffic Flow Management, recognizes the requirement for training all stakeholders in an ATFM service, i.e. both those directly responsible for operational ATFM functions and all other ATFM stakeholders including airspace users and ATS personnel (ref. Doc 9971 section 3.3).

2.3 The attached document provides guidance on generic ATFM training requirements. It is still very much work in progress, but it was considered timely to present the document to the ICAO APAC ATFM/SG/4 for its consideration and comment.

2.4 Presently the attached document is presented in the format of an EU-AATIP deliverable. It is the intention of the EU-AATIP project to in parallel also seek further input from the nominated focal points from the ASEAN member States.

2.4 Subsequently, once the document has reached sufficient maturity, the aim is that it is submitted to ICAO as draft material for inclusion in a future version of ICAO Doc 9971.

### **3. ACTION BY THE MEETING**

The meeting is invited to:

- a) note the information contained in this paper and its attachment;
- b) discuss and review the attached document and to provide comments as appropriate; and
- c) agree on a preferred way forward.

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# **AATIP**

**ASEAN Air Transport Integration Project**

## ASEAN ATFM Training Requirements Document

**In support of a sustainable ASEAN Single Aviation Market**

### Scope of the Document

The present document is intended to provide information and guidance on the training and expertise required for personnel involved in the operation of an ATFM service. It should be used in conjunction with the relevant ICAO Standards and Procedures as well as relevant regulations, procedures and documents that locally apply.

This document has been produced with the financial assistance of the European Community. The views expressed herein are those of AATIP and can therefore in no way be taken to reflect the official opinion of the community.



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Implemented by EASA, in consortium with EUROCONTROL, UK CAA and DGAC France

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## 1. INTRODUCTION

### **General**

Air traffic Flow Management is an enabler of Air Traffic Management efficiency and effectiveness contributing to the safety, efficiency, cost effectiveness and environmental sustainability of an ATM system. ATFM aims at enhancing safety by ensuring the delivery of safe densities of traffic and by minimising traffic surges. Its purpose is to balance traffic demand and available capacity.

As traffic grows, an increasing number of States are moving towards the implementation of an ATFM service. Although this is a positive development, it also generates another challenge. Because of its effect on neighboring airspaces, ATFM needs to be coordinated between States. ATFM systems therefore need to be compatible and interoperable. In this respect, the development of coordinated and harmonised training requirements is a first step in ensuring a harmonised application of ATFM.

Once demand start to reach the levels of available ATC capacity, a functioning ATFM service becomes a vital component of safe and efficient provision of Air Traffic Control services. Therefore this service needs to be staffed by personnel with sufficient knowledge and understanding of the ATM system they are supporting and the potential effects of their work on the safety and efficiency of air navigation.

To ensure this and in the frame of their training policy, States and ANSPs should establish training plans to ensure that ATFM service staff are properly trained in order to ensure the availability, continuity, accuracy and integrity levels requested for the service provided.

*ICAO Doc 9971, Manual on Air Traffic Flow Management recognizes the requirement for training all stakeholders in an ATFM service, i.e. both those directly operation and ATFM function and all other ATFM stakeholders including airspace users and ATS personnel (ref. Doc 9971 section 3.3).*

Due to the complexity of the issues at hand when setting out to balance demand against available implementation options, the provision of an efficient ATFM service requires that training is approached in a systematic manner.

This document addresses the need to provide for a set of training requirements to be introduced in support of a harmonised and effective ATFM function. The document describes the requirement for training for staff having responsibilities with regard to the ATFM function. It addresses the requirement for the various levels of staff in an ATFM Unit, as well as those stakeholders affected by ATFM measures. The proposed training requirements are designed to support local application of ATFM at the same time as it prepares States for a regional application of ATFM.

It is assumed that each State and/or ANSP that will set out to train ATFM service staff will have to consider the type of equipment used in their area of operation. The material in this document is made very general when it comes to training required to operate the system that is used, and will have to be detailed based on the tools used in that particular area in support of ATFM services.

ICAO and Eurocontrol sources were consulted for the development of the training concepts and methodology presented herein. The proposed training syllabus is derived with the support of in-depth ATFM service expertise. Anticipated feedback from ASEAN States implementing ATFM will be used to evolve and refine the document.



## **Background**

Regional networked Air Traffic Flow Management forms a major part of the ICAO ASBU framework since Block 0 (2013) through B0-NOPS. In support of the B0-NOPS module, ICAO enlisted a group of experts from States, ANSPs, and International Organisations with ATFM experience (ATFM Manual Coordination Team) to develop the ICAO Manual on Collaborative ATFM (Doc 9971), providing guidance on Collaborative ATFM implementation (published 2014).

Meanwhile, ICAO Asia-Pacific moved forward to develop ICAO Asia/Pacific Seamless ATM Plan, including provision on CDM/ATFM development to support Seamless ATM Operations in the region. Version 1.0 of the Seamless ATM Plan was endorsed by APANPIRG/24 meeting in June 2013. APANPIRG/24 meeting approved Conclusion 21/15 that States participate in and support the Asia/Pacific ATFM Steering Group to develop a common Regional ATFM framework, which addresses ATFM implementation and ATFM operational issues in the Asia/Pacific region.

The ATFM/SG/2 meeting in Hong Kong, China in September-October 2013 made the decision to form the ATFM Specialist Team of experienced ATM/ATFM specialist and other stakeholders to develop the Interim Framework for Collaborative ATFM with the goal for consideration at APANPIRG/25 and the Asia Pacific Regional Framework for Collaborative ATFM.

A number of ATFM functions are already existent in the ASEAN area or are under development. These include BOBCAT, Manila/Jakarta domestic arrivals and the Bangkok-Singapore-Hongkong (and Malaysia) initiative.

In support of these developments, the EU-AATIP project conducted a cross border ATFM workshop with the objective to discuss priorities for the development of initial ATFM requirements. The workshop, held in February 2014, agreed that the EU-AATIP project would support the development of a common ASEAN position on ATFM in the area, addressing issues such as:

- Evaluation of ATFM concepts and plans in ASEAN area
- Regulatory framework/template for ATFM
- Harmonised training requirements document
- ATFM Terminology document
- Social aspects, cultural change
- Overall ASEAN ATFM structure

It is the intention of EU-AATIP to put forward clear proposals on all the issues described above, and the first item to be addressed is the need of a harmonised training requirements document. It is expected that the training document developed by the ASEAN member States and their ANSPs under the umbrella of the EU-AATIP project could be integrated into the Asia-Pacific Regional Framework for Collaborative ATFM to ensure readiness of human resources on Collaborative ATFM operations. Also, it is suggested that when the training curriculum itself matures, its content could be proposed to complement training guidance in the ICAO Manual on Collaborative ATFM (Doc 9971).

## **Purpose and Scope of the Document**

The purpose of this document is to define a training process and specify training guidelines in order to have a common level of training for staff that operate and/or "experience" ATFM services in the ASEAN area. The document addresses the following:



- Who is to be trained?
- What pre-requisite skills are required or can be obtained?
- What are the required phases of ATFM training?
- What is the level of training depending on the level of responsibilities to be exercised?

## ***Structure of the Document***

The ASEAN ATFM Training Requirement Guidelines document consists of 5 Chapters, and 2 Appendices:

Chapter 1: Introduction

Chapter 2: ATFM Training Structure

Chapter 3: From competencies to training requirements

Chapter 4: Ab-Initio ATFM Training

Chapter 5: Basic training

Appendix A: Glossary *(to be included)*

Appendix B: List of Abbreviations *(to be included)*



## 2. ATFM Training Structure

### ***A matrix model of ATFM training***

By means of ATFM training, it is expected that staff of ASEAN ATFM units will obtain the appropriate skills to operate and maintain an ATFM function in an appropriate manner and consequently provide harmonised, homogenous and consistent ATFM services in the entire region.

In addition to the staff of the ATFMU itself, there are several other units/areas/entities where staff needs to be aware of ATFM services provided and the specific roles and responsibilities they carry in this process. Units where ATFM is exercised or directly experienced and where staff therefore needs training include:

- Aircraft Operators
- Pilots
- Airport Operators
- ATC
- Military, both service providers and users
- Regulatory bodies (CAAs and equivalent)

Training can be divided into several phases. These include

- Ab-initio
- Initial/Basic Training
- On-the-job training
- Advanced training
- Recurrent/Refresher training

There are several basic requirements or pre-requisites for the successful conduct of ATFM training. These include:

- Pre-requisite skills
- Complementary skills acquisition
- Medical requirements
- Language requirements

An ATFM service is provided at different levels, each with its own training requirements. The different levels of ATFM responsibilities considered are the following:

- Operations management
- Supervision
- Planner
- Execution
- Support
- CDM partner
- General ATM personnel

This guidance document proposes a six level set of training objectives for each ATFM population grouping depending on the level of responsibility to be exercised by each group.





- Level 0 To be aware of
- Level 1: A basic knowledge of the subject. It is the ability to remember essential points, to memorise data and retrieve it.
- Level 2: The ability to understand and to discuss the subject matter intelligently in order to represent and act upon certain objects and events.
- Level 3: A thorough knowledge of the subject and the ability to apply it with accuracy. The ability to make use of the repertoire of knowledge to develop plans and activate them.
- Level 4: The ability to establish a line of action within a unit of known applications following the correct chronology and the adequate method to resolve a problem situation. This involves the integration of known applications in a familiar situation.
- Level 5: The ability to analyse new situations in order to elaborate and apply one or other relevant strategy to solve a complex problem. The defining feature is that the situation is qualitatively different to those previous

(source: EUROCONTROL Specification for the ATCO Common Core Content Initial Training)

This paper proposes that a matrix should be constructed to determine the level of training and competency required for each group in the ATFM population. A partial matrix template is shown below. This is developed further in the document. The levels are shown for illustrative purposes only.

	Operations management	Supervision	Planner	Execution	Support	CDM partner	General ATFM personnel
<b>Subject</b>							
ATM	2	2	2	2	2	1	1
ATFM	2	3	4	3	2	2	1
ATC	2	2	2	1	1	1	1
Airport operations	2	2	2	2	1	1	1
Aircraft operations	2	2	2	2	1	1	1
Meteorology	2	2	3	3	2	1	1
ICAO	3	2	2	2	2	1	1
ATFM tools	2	2	3	3	3	2	1
Capacity assessment	2	2	2	1	1	1	1
Airspace design	2	2	2	1	1	1	1

## Phases of ATFM training

### General

ATFM training can be divided into a number of phases. This document mainly discusses training requirements for the initial/basic training, other phases are discussed briefly

### Ab-Initio Training

Ab-initio training is intended to ensure that new ATFM staff possesses the necessary contextual knowledge in order to follow the more detailed job related training. In many cases staff may already possess this knowledge (e.g. ATC staff will possess the necessary ATC knowledge, Airline operations personnel the necessary aircraft operations knowledge. The possession of the necessary ab-initio subject knowledge should be assessed upon



recruitment / assignment. In cases where staff possess the necessary contextual knowledge these staff may be exempted in whole or part from elements of initial training.

### **Initial/Basic Training**

Initial training is the first phase where the core ATFM and associated operational topics are covered in a comprehensive fashion. At the successful completion of initial training the staff member should have all the relevant knowledge and skills to perform his role in the ATFM operation.

### **On the Job Training**

ATFM, in common with many other operational occupations requires a substantial amount of practical application of the occupation under appropriate supervision in order to ensure that the acquired skills and knowledge from the initial training course(s) can be applied in an autonomous manner. The purpose is to reinforce formal training and support the achievement of competency standards. If appropriate, OJT phases can also follow advanced or refresher training.

### **Advanced Training**

As ATFM functions develop, a number of advanced ATFM analysis and application techniques are used. Secondly some staff involved in the execution of ATFM will require a higher level of skills and advance training modules will be required for both such cases. The purpose of advanced training is to augment the skills and knowledge of ATFM personnel in dealing with either more specific, complex problems or a wider breadth of issues.

### **Recurrent/Refresher Training**

It is essential that ATFM personnel update his or her competencies in accordance with the latest operational requirements, and new methodology/technologies applied. Regular recurrent training should therefore be planned. It is important to maintain the current skills of ATFM personnel. Some ATFM techniques are applied only in very rare situations (contingency, exceptional events). ATFM personnel can be absent from their core operational function for extended lengths of time. For these three reasons recurrent/refresher training modules will be required.



### 3. From competences to training requirements

#### Introduction

In order to design detailed training requirements, it is necessary to:

- Identify job responsibilities and associated performance and measurement criteria;
- Identify the competencies required to meet these job responsibilities and performance.

After thoroughly having analysed the job responsibilities and expected performance, it is important to identify the associated competencies and the type of training required. With full understanding of this, it is now possible to determine what the competencies are of a fully competent staff member. Items that may be needed to perform this analysis could include:

- the specific job or position description or summary,
- specific ATFM organisation performance requirements or competencies,
- Standard operating procedures that apply to an individual's position or responsibilities.

When the pre-requisites described above identified and analysed, it is possible to design the training required to address the gaps through the development of the learning objectives for each competency that needs to be addressed. The first step would be to identify the learning objectives, and then design the curriculum.

#### Main tasks of an ATFM Unit

The first step towards defining the training requirements is to identify job responsibilities. The main tasks of a service provided by an ATFM unit include:

- Receive and analyze all ATFM data and parameters
- With the support of the local ATC Supervisor, plan and coordinate capacity adjustment for next day's operation
- With the support of the local ATC Supervisor, plan and coordinate ATFM Daily Plan for the next day's operation
- Manage proper execution of ATFM Measures on day of operation based on ATFM Daily Plan
- Coordinate tactical capacity adjustment on ATM resources with the local ATC Supervisor.
- Monitor and execute ATFM Measures on day of operation as required based on ATFM Daily Plan
- Ensure proper integration of traffic demand inputs
- Ensure proper configuration of ATFM automation support systems
- Ensure optimisation of resources through an efficient CDM process.
- Conduct post operations analysis of previous days ATFM operation

In addition, other units/areas/entities involved in the execution of ATFM have their specific roles and responsibilities. Apart from the local ATC Supervisor, their tasks are typically to participate in the CDM process and to execute agreed decisions.

The local ATC Supervisor is the one responsible for coordinating with the ATFM Unit on issues such as the capacity of the sectors/airports under his/her responsibility, and decides together with the ATFM Unit on the requirement for the introduction of Traffic Management Initiatives.



### **ATFM Competences for Staff executing ATFM**

To perform ATFM tasks, staff needs to be trained to achieve a number of competencies. These include:

- Following coordination with the local ATC Supervisor, determine an accurate picture of air traffic demand
- Receipt, verify, evaluate, enter and store all relevant ATFM data
- Monitor the evolution of demand versus capacity identifying all shortfalls and opportunities for optimization
- Following coordination with the local ATC Supervisor, determine the needs for ATFM measures in all phases of ATFM
- Draw up and publish ATFM plans and any changes to the plan (understand what Information to be Published),
- Create, maintain, monitor and adjust all relevant ATFM scenarios and measures
- Know and adhere to all relevant operational instructions, operations manuals and letters of agreement (actively locate, read and follow instructions),
- Staff directly executing an ATFM service needs to have full knowledge of the FIR and/or airports for which the service is applied. They need to understand the factors that impact on the capacities for the various parts of airspace and airports, and they need to be fully aware of the impact on the provision of ATC that the different actions they propose to implement may have.
- In order to be effective, an ATFM function needs to coordinate and cooperate closely with ATC, airports and civil and military airspace users.

### **ATFMU Operational Staff Job Descriptions**

The job descriptions of staff operating and ATFM facility will depend on the chosen organisation. For the purposes of this document the following job descriptions are proposed. Depending on the local organisation functions may be combined or subdivided.

- ATFM Unit Supervisor
- ATFM Unit Planner
- ATFM Unit Office (executive)
- ATFMU Support Assistant
- ATFMU CDM partner

### **ATFMU Supervisor Staff Job Descriptions**

The duties of the supervisor/manager of an ATFM service function include:

- Ensure self-briefing and that all ATFM staff are fully briefed on all aspects of the operation
- Plan and coordinate with ATC supervisor capacity adjustment for next day's operation
- Plan and coordinate ATFM Daily Plan for the next day's operation
- Supervise the proper execution of ATFM Measures on day of operation based on ATFM Daily Plan
- Organize, chair and conduct all necessary CDM conferences
- Proactively use their experience and authority in an appropriate manner, be creative and use initiative in the resolution of problems that may arise using an inclusive collaborative process



- Execute all appropriate staff management duties fairly and transparently in accordance with local procedures and processes.
- Manage disruption and contingency procedures and ensure appropriate escalation
- Ensure ATFMU management is aware of all significant events.
- Ensure accurate log keeping and recording of all significant occurrence.

#### **ATFMU Planner Staff Job Descriptions**

The duties of the planning function of an ATFM service include:

- To manage and execute the short term strategic and pre-tactical operational processes and post operational evolution
- To maintain a good level of coordination with the ATC Supervisor in order to negotiate the best possible pre-tactical solutions including negotiating improved capacity, applying ATFM regulations where necessary and proposing & implementing the optimum ATFCM measures for the network.
- To create and continuously adapt plans and to propose new solutions taking into consideration ever changing circumstances.
- To proactively provide all reasonable assistance to the airspace users in order to allow them to optimize their operations.
- To endeavour to maintain the principles of network optimisation and collaborative decision making during all ATFM processes.
- To coordinate ATFM solutions with other operational functions (tactical, AMC, Flight Planning)
- To ensure that the ATFM network plan and all changes are fully communicated with Aircraft Operators, Airports and Air Traffic Control Centres.
- To evaluate execution of the ATFM plan in order to determine lessons learnt and issues for future attention.

#### **ATFMU Officer Job Descriptions**

The duties of the ATFM Officer function of an ATFM service include:

- To execute the tactical flow management operational process from a network perspective.
- To constantly monitor traffic loads on all ATFM resources.
- To monitor any potential and actual changes in capacity (e.g. staffing, weather, airport infrastructure, etc.) and implement appropriate measures.
- To maintain a good level of co-ordination with the ACC in order to negotiate the best possible tactical solutions including negotiating improved capacity, applying measures where necessary and proposing & implementing re-routing scenarios.
- To continuously adapt plans and to propose new solutions taking into consideration ever changing circumstances.
- To proactively provide all reasonable assistance to the airspace users and air navigation service providers in order to allow them to optimize their operations.
- To endeavour to maintain the principles of network optimization and collaborative decision making during all relevant ATFCM processes.
- coordinate tactical capacity adjustment on ATM resources
- Ensure the promulgation of all measures taken.



### **ATFMU Support Assistant Job Description**

The duties of the ATFM Support Assistant function of an ATFM service include:

- Coordination with external clients (airspace users, ATS units, military) under the supervision of planning and executive staff
- Reception, validation and in of ATFM data
- Ensure proper integration of traffic demand inputs
- Maintenance of operational documentation
- Responding to routine queries from external clients, providing standard information and referring issues to planner and officer where appropriate

Note: The duties of the Support Assistant function will depend on which executive position the support function is assigned to. It is suggested that the same basic training curriculum is followed for support and executive staff, but that the level of knowledge and competency required be at a lower level.

### **CDM partner Job Description**

The duties of CDM partners are not defined in this document. It is suggested that the training authority selects the appropriate subject and competency levels for each CDM partner group based on the detailed training requirements below.



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## 4. *Ab initio* ATFM training

Ab-initio training is intended to ensure that new ATFM staff possesses the necessary contextual knowledge in order to follow the more detailed job related training. In many cases staff may already possess this knowledge (e.g. ATC staff will possess the necessary ATC knowledge, Airline operations personnel the necessary aircraft operations knowledge).

The possession of the necessary ab-initio subject knowledge should be assessed upon recruitment / assignment. In cases where staff possess the necessary contextual knowledge these staff may be exempted in whole or part from elements of initial training.

The following subjects need to be covered in the Ab-Initio Training phase:

Phase	Ab-Initio					
Subject	Air Traffic Management					
Objective	Knowledge and understanding of the international, local and regional air traffic management rules, concepts and structures					
Content	<ul style="list-style-type: none"> <li>• Aviation Law (LAWB)</li> <li>• Air Traffic Management (ATMB)</li> <li>• Meteorology (METB)</li> <li>• Navigation (NAVB)</li> <li>• Aircraft (ACFTB)</li> <li>• Human Factors (HUMB)</li> <li>• Equipment and Systems (EQPSB)</li> <li>• Professional Environment (PENB)</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Ab-Initio					
Subject	Air Traffic Services					
Objective	Knowledge and understanding of the regulatory and local and regional operational air traffic services organisation and structure					
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Ab-Initio					
Subject	Airspace Management					
Objective	Knowledge and understanding of the regulatory and local and regional operational airspace management organisation and structure					
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Ab-Initio					
Subject	Airport Operations					
Objective	Knowledge and understanding of the local airport operations					
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Ab-Initio					
Subject	Aircraft Operations					
Objective	Knowledge and understanding of the organisation, structure and working procedures of an AOCC					
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Ab-Initio					
Subject	Aviation English					
Objective						
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level	3	3	3	3	3	3
Duration						



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Phase	Ab-Initio					
Subject	Collaborative Decision making					
Objective	<p><u>Objective:</u> To ensure</p> <p>a) full knowledge of the process to communicate and exchange operational information among stakeholders on a real-time basis.</p>					
Content	<p>Means of communication</p> <p>stakeholder roles and responsibilities</p> <p>CDM action metrics</p>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



Phase	Ab-Initio					
Subject	IT Skills					
Objective	<p>Ensure that ATFM staff possess the necessary knowledge and practical experience of PC skills to carry out the following:</p> <ul style="list-style-type: none"> <li>• Drafting ATFM plans</li> <li>• Graphical descriptions of ATFM scenarios and proposals</li> <li>• Operational report writing</li> <li>• Production of statistics and analysis of ATFM data (predicted and post operations)</li> <li>• Electronic communications with CDM partners.</li> </ul>					
Content	<p>MS Office suite Spread sheet creation, sorting, analysis, pivot tables Mail, Word, Powerpoint</p>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



## 5. Basic ATFM training

Initial/basic training is the main phase where the core ATFM and associated operational topics are covered in a comprehensive fashion. At the successful completion of initial training the staff member should have all the relevant knowledge and skills to perform his role in the ATFM operation.

The following subjects need to be covered in the Ab-Initio Training phase:

Phase	Basic					
Subject	ATFM General					
Objective	<p>a) ensure full understanding of the philosophy of air traffic flow management, and of the objectives and principles of ATFM;</p> <p>b) knowledge of how an ATFM service operates;</p> <p>c) understanding of the terms and definitions used.</p> <p>d) understanding of the structure and organisation of the ATFM service function, including the roles and responsibilities of the stakeholders in the ATFM service;</p> <p>e) understanding of the training requirements for stakeholders in the ATFM service, and</p> <p>f) full knowledge of the terms and definitions used.</p>					
Content	<ul style="list-style-type: none"> <li>• Objectives and principles</li> <li>• Benefits</li> <li>• Operations</li> <li>• CDM</li> <li>• Civil/Military coordination</li> <li>• Structure</li> <li>• Roles and responsibilities</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



Phase	Basic					
Subject	ATFM Institutional and Regulatory background					
Objective	<p>a) knowledge of ICAO rules standards and recommended practices (Annex 11, Doc 4444, Annex 15)</p> <p>b) knowledges of local rules and procedures (AIP, Letters of Agreement, local procedures, Start-up procedures, departure sequence)</p>					
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Basic					
Subject	ATFM Phases					
Objective	a) understanding of the main principles for how the ATFM processes are applied during the different phases in order to balance demand and capacity within a given area.					
Content	<ul style="list-style-type: none"> <li>• Pre-ATFM, planning phase</li> <li>• Strategic</li> <li>• Pre-tactical</li> <li>• Tactical</li> <li>• Post-Ops</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Basic					
Subject	ATFM Resources					
Objective						
Content	Sectors Airports					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Basic					
Subject	ATFM Demand					
Objective	<p>Objective: To ensure</p> <p>a) knowledge of the process of organising demand into traffic volumes based on particular reference locations;</p> <p>b) understand the configurations used and the establishment of pre-defined scenarios; and</p> <p>c) understand issues related to occupancy.</p>					
Content	<ul style="list-style-type: none"> <li>• Forecasts</li> <li>• Schedules</li> <li>• Flight plans</li> <li>• Airport slots</li> <li>• Flight positions</li> <li>• Missing flight plans</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



Phase	Basic					
Subject	ATFM Capacities, airspace/airports					
Objective	<p>Objective: To ensure</p> <p>a) understanding of the process to optimise available capacity, and how to use other available capacities;</p> <p>b) awareness of factors impacting capacity.</p>					
Content	<ul style="list-style-type: none"> <li>• Capacity assessment models</li> <li>• Monitoring values</li> <li>• Intervention values</li> <li>• ATC Capacity</li> <li>• Adverse weather operations</li> <li>• Staffing schedules and opening schemes of the component ATC Units</li> <li>• Capacity optimisation</li> <li>• Factors reducing capacity</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



Phase	Basic					
Subject	ATFM Measures (Traffic management Initiatives)					
Objective	<p><u>Objective:</u> To ensure</p> <p>a) knowledge of the different measures and how to apply them in the ATFM service;</p> <p>b) understand the role of the stakeholders in the process.</p>					
Content	<ul style="list-style-type: none"> <li>• Capacity Optimisation measures (sector/airport management, complexity reduction)</li> <li>• Demand distribution measures (routing scenarios, level capping, advancing traffic, balancing arrivals/departures, Ground delay)</li> <li>• Demand regulation/reduction measures (Airborne delay/holding, minimum departure intervals, miles in trail, policy, out of area traffic, adherence)</li> <li>• Exemptions and exclusions (compliance monitoring, reporting)</li> <li>• Slot swapping, slot extensions (policy, slot swap, slot extension)</li> <li>• Delay causes and attribution</li> </ul>					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



ATFM/SG/4-WP/09  
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Phase	Basic					
Subject	ATFM Contingency procedures					
Objective						
Content						
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						

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Phase	Basic					
Subject	ATFM Operations					
Objective						
Content	ATFM Operations and airports ATFM Operations and aircraft operations ATFM Operations and meteorology					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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Phase	Basic					
Subject	ATFM Data					
Objective						
Content	Description of all data sets and elements used in ATFM					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						



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ATFM/SG/4-WP/09  
Attachment A

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Phase	Basic					
Subject	ATFM Tools					
Objective	To ensure full knowledge of the function and use of tools providing support to the application of ATFM.					
Content	Tbd based on the tools used					
Role	Operations management	Supervision	Planner	Execution	Support	CDM partner
Level						
Duration						

DRAFT



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